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Address

SUTURE OF WOUNDS OF THE HEART

WITH REPORT OF A SECOND CASE AND A TABLE OF 150 OPERATIONS *

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"Let no man who hopes to retain the respect of his medical brethren dare to operate on the human heart." These words were spoken less than a quarter of a century ago by a master in surgery and one of the boldest operators who ever lived, but if Billroth could appear to-day he would be astonished to learn that not only does the profession approve of such operations but that the mortality is no greater than he experienced in his own early work in abdominal surgery. Heart surgery is truly modern surgery.

The ancient surgeons had no hesitation in operating on the skull and lungs, but so great was the superstitious fear of touching the heart that we find no record of an operation, even on the pericardium, until 1793, when the great military surgeon, Baron Larrey, planned the operation and removed fluid from the pericardium with a hollow needle. It seems that the first operation on account of a wound of the pericardium was done in 1887 by another military surgeon, a former member of the Association of Military Surgeons, Col. R. Harvey Reed, who removed a section of the sixth rib from a patient who had been stabbed in the region of the heart, cleaned out the blood clots and sutured the pericardium, with recovery of the patient. Four years later, in 1891, Dr. H. C. Dalton, of St. Louis, performed a similar operation with a like result. Many other surgeons have operated on the pericardium, usually with recovery. In 1895 Rosenthal proved that a dog could recover from experimental wounding of the heart under the simple treatment of plugging the wound with iodoform gauze. In the same year Del Vecchio conducted a number of experiments and succeeded in curing a dog after making and suturing two perforating wounds in the left ventricle.

Thus was the way prepared for operations on the human heart: first, the observations of Paré, Fischer and many others that wounds of the heart were not always fatal; second, the idea of treating such wounds in a rational way as conceived by many (Roberts in 1881 advised that heart wounds should be closed by sutures), and, third, the demonstration that suture of the heart in the lower animals could be successfully accomplished.

THE FIRST OPERATION

All that could be done had been done except to perform the operation on the human heart, when, in 1896, just 98 years after the first operation on the pericardium, Farina, of Rome, closed with three silk sutures a stab wound of the right ventricle of the human heart. The patient died of pneumonia on the sixth day, but he had lived long enough to prove the success of the operation. In 1896 suture of the heart was done in 3 cases with 1 recovery; 4 with 1 recovery in 1897; 12 with 5 recoveries in 1898, and so on until the present time, when I am able to present a table of 150 patients in whom the heart was sutured.

Care has been taken to avoid repetition and other errors by reading the original reports, but this was sometimes impossible. Operations on the pericardium only and those operations on the heart other than by suturing have been left out of the table. Such are the cases of Hill and Doyle, each of whom extracted a needle from the heart; of Weiss and of Sartirona and Borsotti, each of whom tamponed a heart wound; of Picqué, who simply drained the pericardium for a bullet imbedded in the wall of the left ventricle, with recovery; of Tuffier, who removed a bullet imbedded in the wall of the left auricle and drained the pericardium, with recovery; and of Guidone, whose patient died before he had time to begin the introduction of sutures. The case of the negro physician, Williams, has been erroneously included in several tables of cases of heart suture both in this country and abroad. I have rejected it for the same reason that Lenormant gave for omitting it from his table, namely, that it was not an operation on the heart. In my original table, published in 1901, twenty-six cases were tabulated, of which only three were done in America. Now at least fourteen have been done in America with six recoveries. My second case of heart suture was as follows:

CASE OF HEART SUTURING

History.—R. D., male, colored, aged 32, barber, was admitted to the Emergency Hospital Feb. 1, 1908, having just been stabbed in the left breast with a knife.

Examination.—The patient was in a semicomatose state, partly due to drink, with cold extremities and pulse of 120, at times imperceptible at the wrist. On auscultation the heart sounds were faintly heard. An incised wound about half an inch long was seen, one-sixteenth of an inch to the inner side of the left nipple between the fourth and fifth ribs. Very little blood escaped. A probe was passed into this wound and took a downward and inward course to a depth of 3½ inches. A diagnosis of probable wound of the heart was made, and the operation was begun as soon as practicable—a little more than one hour after the receipt of the wound.

Operation.—With strict asepsis a flap was made of the left fourth, fifth and sixth cartilages, hinge internal, by cutting through the third and sixth intercostal spaces horizontally, uniting the outer ends of these incisions by a vertical one crossing the fourth, fifth and sixth ribs, which were divided at their junction with the cartilages. The flap thus made was lifted up, the pleura stripped from it and turned across the sternum, hinging on the left chondrosternal junction. (Fig. 1.) The pleura was thus widely opened, and the left

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lung soon collapsed. The stab wound had passed through the left lung, pericardium and into the right ventricle near the interventricular septum, making a wound a third of an inch long into the cavity of the ventricle, near its lower end. Little blood was found in the pericardium, but more than a pint was removed from the left pleural cavity. The pericardial wound was enlarged to about three inches, when the wound in the ventricle was clearly seen, with a small jet of dark blood spurting out with each systole. The lips of the wound were caught with hemostatic forceps and held together while a continuous suture of fine silk—five sutures—was made. The stitch holes bled, so that a second row of silk sutures was inserted, Lembert style, making in all about twelve sutures. Two points continued to bleed and were caught up with forceps and ligated with catgut. Hemostasis was then complete, and the heart beat well and strong. The ventricular walls seemed no thicker than those of an auricle. The pericardium, being clean, was closed without drainage with a continuous catgut suture. The pleura was closed in the same way after drying it out with gauze, the costal cartilages being sewed back to the ribs and divided muscles united—all with catgut, except the skin, in which silkworm gut was used. The pulse was 120 at the end of the operation, but of better quality than before.

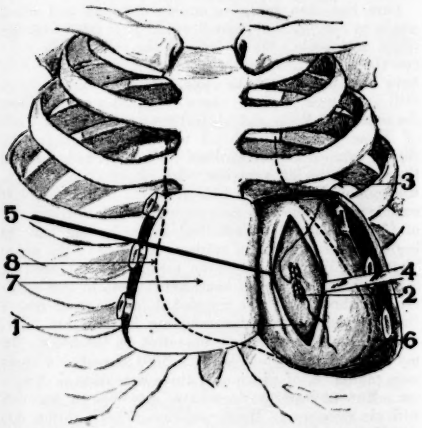

Fig. 1.—Operation for wound of the heart. 1, heart; 2, deep sutures; 3, superficial sutures; 4 and 5, retractors on pericardium; 6, left pleural space; 7, flap of chest wall, including fourth, fifth and sixth ribs; 8, heart outlined by broken line.

Postoperative History.—February 2: Pulse 120 to 140, temperature 102 F., and respirations 40 to 60.

February 5: Symptoms of delirium tremens came on and a restraining apparatus was necessary to keep the patient in bed. Whiskey was ordered.

February 6: The patient was violently insane, so the whiskey was increased until on February 7, when he was taking two ounces every hour, and actually took three pints during this twenty-four hours. Pulse fell from 132 to 120, and the mental condition improved.

February 8: He was conscious most of the time.

February 9: Mind clear, and restraining apparatus was removed and the whiskey reduced to two ounces every four hours.

February 10: Delirium returning, whiskey was again increased, and the mental and other symptoms at once began to improve. Cough troublesome. The left lung had expanded and seemed to fill the pleural cavity. The wound healed without trouble, and February 25 the patient was up for the first time. Pulse 80, temperature 98.4 F.

March 11: Patient was discharged recovered and was presented to the District of Columbia Medical Society.

March 29: Patient was readmitted to hospital on account of excessive drinking.

April 16: He was discharged in excellent condition; heart sounds a little softer than normal.

May 18: Patient seemed in good health.

October 11: Patient is apparently in perfect health.

STUDY OF THE TABLE

The features presented by the table may be studied as follows:

TIME BETWEEN RECEIPT OF WOUND AND OPERATION

In 106 cases this time is given all the way from "at once" to 5 days—the large majority of patients, 88, being operated on not later than 6 hours after the injury (44 in 1 hour or less and 44 in from any time over 1 hour to 6 hours), with 35 (39.75 per cent.) recoveries; 10 between 6 and 12 hours, with 5 recoveries; 1 between 12 and 18 hours, with recovery; 4 between 18 and 24 hours, with 1 recovery; 2 between 24 and 48 hours, with 2 recoveries, and 1 after 5 days, with recovery. These figures would indicate that the longer the time after injury before operation the less the mortality, but it must be borne in mind that in the worst cases the patients die or are saved by operation before the expiration of the first six hours, and those who survive this time are the best risks from an operative standpoint.

LOCATION OF EXTERNAL WOUND

Ever since Joab so treacherously and fatally smote Amasa in the fifth rib a wound in this region has been regarded as especially dangerous and the figures here presented confirms this opinion. Of 133 patients in whom the situation of the external wound was given, 130 were on the left side, including:

1 through the first intercostal space.
6 through the second intercostal space.
19 through the third intercostal space.
52 through the fourth intercostal space.
36 through the fifth intercostal space.
7 through the sixth intercostal space.
2 through the seventh intercostal space.
6 below the costal cartilages.

On the right side there was one case each of wounding through the second, fourth and fifth interspaces. Ninety-one, or 68 per cent., were just above or just below the fifth rib, and 110, or 83 per cent., were between the third and the sixth ribs.

INSTRUMENT BY WHICH WOUND WAS INFLICTED

Of 140 cases in which the weapon was indicated, 117, or 83 per cent., were caused by knives or poniards; 16, or 12 per cent., by bullets; 2 by scissors; 2 by iron pickets; 1 by a fragment of glass; 1 by a needle, and 1 by a sharp pointed body. In 10 the instrument is not given.

METHOD OF EXPOSING THE HEART

No single method has yet been agreed on as the best. The kind of operation is often determined by the external wound, and, begun as an exploration, the subsequent steps depend on the necessities which arise during its progress This probably accounts for the large number of resections of cartilages or parts of ribs rather than the formation of a well planned flap of skin, muscle and ribs. The best method is one that will freely expose the heart and not open the pleura or leave the chest wall permanently impaired. The chief methods are:

(a) *The Operation Through an Intercostal Space.*—In a long chest with wide spaces this may be done.

Somerville reports a successful suturing of the left ventricle through the fourth intercostal space. This method may be modified and the space increased by the division of one or two cartilages.

(b) *Resection of One or More Cartilages With or Without a Portion of Rib.*

(c) *Flap Method Across the Sternum (H. Lorenz and Others;* Fig. 2.) Make a transverse incision from the right side of the sternum in the third intercostal

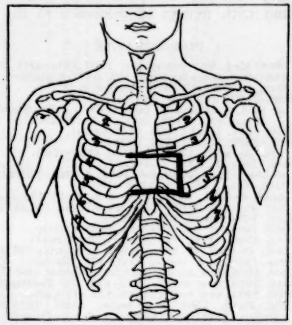

Fig. 2.—Flap of sternum and cartilages of fourth and fifth ribs; hinge on the right. (H. Lorenz and others).

space across the sternum to the left chondrocostal junction. Make a corresponding incision in the fifth intercostal space across the sternum. Unite the left ends of these incisions by a vertical one. The sternum and cartilages are divided with bone forceps along these incisions after ligating the internal mammary arteries and the flap formed is turned to the right, making a hinge of the right chondrosternal joints. This exposes the heart well and avoids opening the pleura.

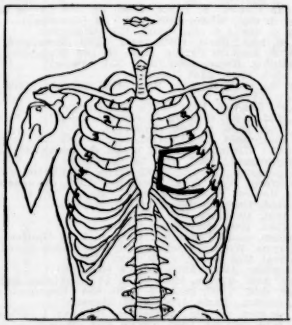

Fig. 3.—Flap of the fourth and fifth ribs and their cartilages; hinge external.

(d) *Flap of Cartilages and Ribs, Hinge External.* (Fig. 3).—In this method the fourth and fifth cartilages are divided near the left border of the sternum, the third and fifth interspaces are divided laterally nearly or quite to the nipple line. The flap is raised by its inner border, the pleura stripped off if practicable, and the ribs are broken or cut near the costochondral junction.

(e) *Flap of Cartilages and Ribs, Hinge Internal.* (Fig. 4).—This method is just the reverse of the preceding, the trap-door opening near the left nipple line and hinging on the left fourth and fifth chondrosternal articulations. The pleura is probably always opened in this method. If more room is needed or the location of the external wound requires it, the flap may include additional cartilages, above or below. The last two methods can be quickly performed and expose the heart well, but are almost certain to open the left pleura. Of 133 operations, in 60 a portion of one or more cartilages or ribs were resected; in 71 a flap of the chest wall was made with the hinge external or internal—occasionally the hinge was placed above or below, and in two cases the suturing was done through an intercostal space.

CAVITY OF HEART WOUNDED AND TREATMENT.

Of 142 patients the left ventricle was wounded in 68, the right ventricle in 68, the left auricle in 4, the right auricle in 4, 2 had each 2 cavities wounded (1 both ventricles and 1 the right auricle and right ventricle) and in 8 the cavity is not mentioned or the weapon passed between 2 cavities. These statistics show that the two sides of the heart are equally liable to injury,

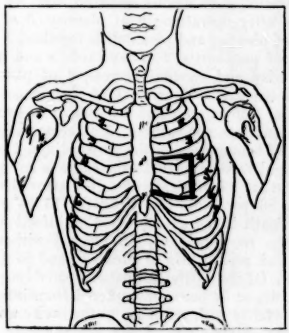

Fig. 4.—Flap of the fourth and fifth ribs and their cartilages; hinge internal.

but that the ventricles are in much greater danger than the auricles in the proportion of 17 to 1.

The size of the wound in the heart varied from 0.5 cm. (1/5 in.) to 6 cm. (2¼ in.). In every case the wound was sutured. The favorite suture material was silk, but catgut was used in many patients. Continuous and interrupted sutures were both used and were introduced by most operators whenever convenient, regardless of systole or diastole. It seems to make no trouble if the suture does enter the cavity of the heart. Tumultuous heart action sometimes interfered with the introduction of the sutures. This was overcome by holding the heart in one hand or using one or two deep sutures, "tension sutures," by which the heart was steadied or drawn forward as might be necessary. In several cases heart massage was used in order to revive a pulseless heart and in a few cases the heart resumed its function.

DRAINAGE OF PERICARDIUM AND PLEURA

In 46 patients the pericardium was drained with 25 recoveries and 23 deaths; in 44 the pericardium was not drained, with 25 recoveries and 19 deaths; in 42 both pericardium and pleura were drained, with 21 recoveries

and 21 deaths; in 19 both pericardium and pleura were closed without drainage, with 12 recoveries and 7 deaths; in 72 the pleura was drained, with 30 recoveries and 42 deaths; in 21 the pleura was not drained, with 13 recoveries and 8 deaths. The lesson taught is to do away with drainage. Some of the disadvantages of drainage are the risk of secondary infection, irritation or inflammation excited by the gauze or tube, and the bad effects on the collapsed lung of keeping the pleura open. However, some cases should be drained, as when infection is highly probable or hemostasis has not been satisfactory.

MORTALITY

Of 150 patients operated on, 98 died and 52 recovered, a mortality of 65 per cent., about the same as it was twelve years ago and in 1901, when 26 cases were reported. Naturally, the mortality must always be high. Thirty-two patients died in less than twenty hours after operation or the reception of the wound, fifteen on the operating table during or just after operation—nearly all from loss of blood, though one death was attributed to pneumothorax on opening the left pleura. Thus we may say that 32, or 20 per cent., of the patients are moribund when the surgeon first sees them.

The remaining 66 deaths occurred from 24 hours to 5 months after operation; 6 of pleurisy, 5 of pericarditis, 21 of pleurisy and pericarditis together, 3 of pneumonia, 3 of peritonitis, 2 of pericarditis and nephritis, 1 of pleurisy and cerebral abscess, 1 of pleurisy and wound of the tricuspid valve, 1 of pleurisy and double pneumonia, 1 of gangrene of the lung, 1 of two wounds of which one was not sutured, 3 of hemorrhage in the pleura, 2 of hemorrhage in the pericardium, 1 of clot in the tricuspid valve, and in 15 the cause is not given.

We see that 44 of those who died after the first 20 hours, or 86 per cent. (omitting the 15 in which the cause of death is not given), died of infection, and of the 52 who recovered only 12 escaped without infection, 22 had pericarditis or pleurisy, and in 18 it was not stated. Of the entire 118 patients surviving the first 20 hours, 62, or 52 per cent., suffered from infection.

The mortality with reference to the cavity wounded is as follows: Sixty-eight of the left ventricle with 42 deaths, or 62 per cent.; 68 of the right ventricle with 48 deaths, or 70 per cent.; 4 of the left auricle with 2 deaths, and 4 of the right auricle with 1 death.

Sixteen gunshot wounds were operated on with 9 deaths and 7 recoveries, a mortality of 56 per cent. In the 134 cases with other wounds 89 died and 45 recovered—mortality 66 per cent., from which it would appear that gunshot wounds of the heart have about 10 per cent. lower mortality than other kinds of heart wounds.

CONCLUSIONS

1. There is no longer any question as to the propriety of the operation, since 35 per cent. of the patients recover, compared with 15 per cent. (according to Holmes and Fisher, 1881) of recoveries after nonoperative treatment—a gain of 20 per cent.

2. The mortality is practically the same that it was twelve years ago, when the operation was first introduced, and it behooves the surgeon to study the matter and find a means of improvement.

3. The two great causes of death are hemorrhage and inflammation of the pleura or pericardium. Probably little more can be done than has been done to prevent death from hemorrhage, but inasmuch as more than half the patients who survive twenty hours have infection.

4. There is room for great improvement in preventing infection. Besides the observance of strict asepis the question of opening the pleura and of drainage of pleura or pericardium acting as predisposing causes of infection is of the greatest importance.

5. As a rule, therefore, the pericardium and pleura should not be drained.

Following is the bibliography, arranged alphabetically by publications, and the table, arranged alphabetically by operators, with year of operation as nearly as ascertainable and with figures of reference to the bibliography.

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TABLE OF RECORDED CASES OF SUTURE OF THE HEART

No.	Operator and Year of Operation.	Time between Wounding and Operation. Anesthetic.	Location of External Wound and Instrument by which Inflicted.	Method of Exposing the Heart.	Cavity Wounded and Treatment.	Drainage of		Complications.	Result.
						Pericardium	Pleura.		
1	Alves de Lima[32] 1905	Soon. Chloro.	Knife cut over left fourth cartilage.	Flap of 3rd and 4th ribs—hinge external.	L. V.; 14 mm; 1 catgut suture.	No.	Yes.	Mitral valve wounded. Heart stopped twice and was revived by massage.	Died one hour later. Hemorrhage.
2	Baliva[37] 1897	.....	Stab wound of heart.	.....	Heart wound sutured.	...	...	.....	Died quickly.
3	Bardenheuer[37] 1904	.....	Gunshot wound.	.....	Heart perforated; entrance and exit wounds sutured.	...	...	Pericarditis and pleuritis.	Died two days later.
4	Bardenheuer[37] 1904	.....	Stab wound.	.....	L. V.; sutured.	...	...	Pericarditis and pleuritis.	Died ten days later.
5	Barth 1901	½ hr. Chloro.	Knife cut through the ensiform cartilage.	Resection of right 5th, 6th and 7th cartilages.	R. V.; 2 cm.; 4 silk sutures.	Yes.	Yes.	Right pleura and tricuspid valve wounded.	Died on fourth day; pleuritis.
6	Barth 1901	¾ hr. Chloro.	Knife cuts 3, in fourth left space—3 cm. from the sternum.	Flaps of sternum and left 4th and 5th cartilages—hinge on right.	L. V.; 0.5 cm.; 3 silk sutures.	No.	Yes.	.....	Recovered.
7	Barth 1902	1 hr. None.	Knife cut 3 cm. within and below left nipple.	Resection of 5th and 6th cartilages.	R. V.; 0.75 cm.; 5 sutures.	No.	No.	Pleuritis.	Recovered.
8	Bauder[24] 1906	1 hr. Chloro.	Stab wound in fifth left space 2.5 cm. within and 1 cm. below left nipple.	Flap of ribs—hinge external.	R. V.; sutured.	No.	No.	Pleuritis.	Recovered.
9	Blake, J. A. 1907	2½ hrs. Ether.	Knife cut through fourth left cartilage 1 cm. within nipple line.	Flap of 3rd, 4th and 5th cartilages—hinge internal.	R. V.; 1 cm.; 3 interrupted silk sutures; mattress suture over them.	No.	No.	Pleuritis.	Recovered.
10	Borchardt[37] 1904	2½ hrs.	Boy fell from tree and was impaled on iron picket fence.	Incision over 5th rib.	L. V.; 1.5 cm.; on posterior side; 4 silk sutures.	No.	Yes.	.....	Recovered.
11	Borzymowski[69] 1902	None.	Knife wound between ensiform and left costal cartilages	Wound enlarged—resection of 4th, 5th and 6th ribs.	L. V.; apex; 2 cm.; 3 deep and 3 superficial silk sutures.	...	...	Pericarditis and pleuritis.	Died 2 days later.
12	Borzymowski[69] 1903	Ether.	Wound over fifth left cartilage.	.....	3 wounds; silk sutures.	...	...	Pleuritis; discharge of silk sutures.	Recovered. Resection of third rib 6 mos. later for empyema.
13	Borzymowski[69] 1903	Ether.	Knife cuts 2, over fourth left cartilage	Flap of ribs, 3rd, 4th and 5th; hinge external.	R. V.; sutured.	...	...	Pericarditis and pleurisy. Two wounds, only one sutured.	Died 2 days later.
14	Bougle 1901	½ hr. Chloro.	Pistol ball in third left space; a finger's breadth from the sternum.	Flap of 3rd, 4th and 5th cartilages; hinge external.	R. V.; 2 holes; both sutured with catgut.	No.	Yes.	Ball had passed through wall of ventricle not opening cavity. Wadding in wound.	Died 5 hours later.
15	Brachini 1901	None.	Knife cut in fourth left space; 3 cm. outside nipple.	Flap of 2nd, 3rd, 4th and 5th ribs; hinge external.	Interventricular groove; 5 silk sutures.	...	Yes.	Pericarditis and pleuritis.	Died 142 hours later.
16	Brachini 1901	At once. None.	Three poniard stabs in region of heart.	Flap of 3rd, 4th and 5th ribs; hinge internal.	L. V.; 2 wounds; 1 non-penetrating; both sutured.	...	...	.....	Died on table.
17	Brenner 1901	Next day.	Knife cut over sixth left cartilage.	Flap of 3rd, 4th and 5th ribs; hinge external.	R. V.; 7 mm.; sutured.	...	...	Heart muscle degenerated	Died on table.
18	Brezard and Morel[15 27] 1905	Soon. Chloro.	Pistol ball (8 mm.) in third left space 2 cm. from sternum.	Flap of 3rd, 4th and 5th ribs; hinge external.	L. V.; 2 wounds; entrance and exit sutured with catgut.	No.	...	Cavity of ventricle not opened.	Died on table; hemorrhage.
19	Bufnoir 1899	.....	Gunshot wound in fifth left space; .22 caliber.	.....	R. V.; 1 opening sutured.	...	...	Ventricle perforated; exit wound not sutured.	Died.
20	Camus[23] 1905	About 1 hr.	Poniard stab in fourth left space, a finger's breadth from sternum.	Flap of 3rd, 4th and 5th ribs; hinge external.	R. V.; 1 cm.; sutured with catgut.	Yes.	Yes.	Left pneumonia.	Died 22 hours later.
21	Camus[23] 1905	1 hr.	Knife cut in third left space.	Flap of 3rd, 4th, 5th and 6th ribs; hinge external.	R. V.; 15 mm.; sutured with catgut.	...	...	.....	Died on table.
22	Cappelen 1896	1 hr. Ether.	Knife cut in fourth left space; midaxillary line.	Resection of 3rd and 4th ribs.	L. V.; 2 cm.; sutured.	...	...	Coronary art. found cut; was ligated.	Died 3 days later of pericarditis.

TABLE OF RECORDED CASES OF SUTURE OF THE HEART—(Continued)

No.	Operator and Year of Operation.	Time between Wounding and Operation. Anesthetic.	Location of External Wound and Instrument by which Inflicted.	Method of Exposing the Heart.	Cavity Wounded and Treatment.	Drainage of		Complications.	Result.
						Pericardium	Pleura.		
23	Capello-Cimoroni[73] 1904	None.	Stab wound in seventh left cartilage at margin of sternum.	Resection of 4th, 5th, 6th and 7th ribs.	R. V.; 8 sutures; wound of abdomen.	Yes.	...	Heart sutures discharged in pus 15th day.	Died 2 months later: pericarditis and subphrenic abscess.
24	Carmelo, F.[32] 1904	Chloro.	Knife wound in fourth left space.	Resection of 4th and 5th cartilages.	L. V.; silk sutures.	...	Yes.	Bronchopneumonia.	Died 3 days later.
25	Carnabel 1900	2 hrs. Ether.	Knife cut in third left space 3 cm. from sternum.	Resection of 4th and 5th cartilages.	R. V.; 2 cm.; 3 catgut sutures.	Yes.	Yes.	Pericarditis and pleuritis.	Died 4 days later.
26	Dolsetti[37] 1906	1 hr. Eucain.	Knife wound in fifth left space within nipple line.	Resection of 4th and 5th cartilages.	R. V.; 1.5 cm.; 3 silk sutures.	No.	Yes.	Heart stopped; revived by massage.	Died 7 days later. Peritonitis and mediastinitis.
27	Durante[37] 1897	.....	Wound in heart region.	.....	R. V.; sutured.	...	...	.....	Died some days later.
28	Duval[124] 1906	.....	Knife cut in fifth left space, 8 to 10 cm. from sternal border.	Flap of 4th, 5th and 6th ribs; hinge external.	L. V.; 1.5 cm.; 2 interrupted sutures.	...	...	Heart stopped; warm salt solution injected into L. V.; it beat. Cold solution injected and heart suddenly stopped.	Died on table.
29	Farina 1896	Chloro.	Knife cut at upper border of sixth left rib near sternum.	Resection of 5th, 6th and 7th cartilages.	R. V.; 6 mm.; 3 silk sutures.	No.	...	Bronchopneumonia.	Died 5 days later.
30	Fischer, E.[89] 1907	1 hr. Ether.	Knife cut in third left space; another over second rib.	Wound enlarged; excision of 3rd and 4th cartilages.	L. V.; silk sutures; coronary vein ligated.	Yes.	Yes.	Pericarditis.	Died 30 hours later.
31	Fontan 1900	6½ hrs. Chloro.	Six scissors wounds between third and seventh left ribs.	Flap of 4th, 5th and 6th ribs; hinge external.	L. V.; 12 mm.; continuous catgut sutures.	No.	No.	Pleuritis.	Recovered.
32	Fontan 1901	2 hrs. Chloro.	Knife wound in fourth left space, 0.5 cm. outside nipple.	Flap of 4th, 5th and 6th ribs; hinge external.	L. V.; 6 mm.; continuous catgut sutures.	No.	No.	Pleuritis and emboli in right lung.	Died 5 months later from brain abscess.
33	Fourmestroux, de[17 21 27] 1905	½ hr.	Knife cut a finger's breadth outside left nipple.	Flap of 3rd, 4th and 5th ribs; hinge internal.	L. V.; 3 silk sutures.	...	Yes.	.....	Recovered.
34	Fourmestroux, de[17 21 27] 1905	10 mins. Chloro.	Knife cut in fourth left space.	Flap of 3rd, 4th and 5th ribs; hinge internal.	L. V.; and R. V.; interventricular groove; 3 silk sutures.	...	...	Necropsy. Both ventricles opened by wound through septum.	Died on table.
35	Fummi 1898	Some hrs. Slight.	Knife cut under left nipple.	Resection of 5th rib.	L. V. and apex; nonpenetrating; 1 stitch.	...	...	Pleuritis.	Recovered.
36	Gaudemet[23] 1905	1¼ hrs. Chloro.	Knife cut in fifth left space 5 cm. from median line.	Flap of 3rd, 4th and 5th ribs; hinge external.	R. V.; 4 mm.; 3 catgut sutures.	Yes.	Yes.	Clot found in tricuspid valve; probable cause of death.	Died 24 hours later.
37	Gentil, F.[27 33 53 68] 1901	10 hrs. Chloro.	Wounds 3, in fourth left space.	Flap of 5th and 6th cartilages; hinge internal.	L. V.; 1 cm.; sutured with silk.	Yes.	Yes.	.....	Died 5 days later.
38	Gentil, F.[27 33 53 68] 1903	5 hrs.	.....	.....	R. A.; 1 cm.; sutured.	...	...	.....	Recovered.
39	Gentil, F.[27 33 53 68] 1904	.....	.....	Flap of ribs; hinge external.	R. V.; sutured.	...	...	Pericarditis; syphilis.	Died 17 hours later.
40	Gerzen[37] 1902	Chloro.	Stab in fifth left space.	Resection of 5th and 6th ribs.	L. V.; sutured.	No.	Yes.	Pericarditis, pleuritis, nephritis, hemorrhage.	Died 53 days later.
41	Gerzen[37] 1902	Chloro.	Cut under left costal arch.	Resection of 5th, 6th, 7th, 8th and 9th cartilages.	R. V.; 2.5 cm.; 4 sutures.	Yes.	Not opened.	Pericarditis and pleuritis.	Died 23 days later.
42	Gibbon[77] 1902	¾ hr. Chloro.	Knife cut through fourth left cartilage.	Resection of 3rd cartilage.	R. V.; 1.5 cm.; 1 suture; not completed.	...	...	.....	Died on table.
43	Gibbon[77] 1905	About 3 hrs. Ether.	Knife cut dividing fourth left cartilage.	Resection of 4th cartilage.	R. V.; ½ to ¾ in.; 6 catgut sutures.	Yes.	Yes.	Pleura not wounded.	Recovered.
44	Giordano[49] 1898	½ hr. None.	Knife cut in second left space.	Flap of 3rd and 4th ribs; hinge below.	L. A.; 2 cm.; 4 silk sutures.	No.	Yes.	Left pleuritis. Right pulmonary abscess	Died 18 days later.
45	Giordano[49] 1902	.....	Knife cut in sixth left space.	Flap of 4th and 5th ribs; hinge internal.	L. V.; 2 cm.; 2 silk sutures.	No.	Yes.	.....	Died 1½ hours later.
46	Giordano[49] 1902	.....	Knife cuts in 3rd, 4th and 5th left spaces near nipple.	Flap of 4th and 5th ribs; hinge external.	L. V.; 2 cm.; 2 silk sutures.	No.	Yes.	Autoplastic operation required to close the opening.	Recovered.

47	Giudice[62] 1905	Soon.	Knife cut in third left space.	Resection of 4th and 5th cartilages.	R. V.: 1 cm.; catgut suture.	Yes.	Yes.	Hemorrhage.	Died next day.
48	Giuliano[61] 1903	.....	Stab of third left space in nipple line.	Flap of 3rd and 4th ribs; hinge external.	L. A.: sutured with silk.	Yes.	Yes.	.....	Recovered.
49	Goebell[27] 1905	1 hr.	Pistol ball, 7 mm.	Flap of ribs; hinge external.	L. V.; entrance and exit; both sutured with catgut.	Yes.	Yes.	None.	Recovered.
50	Grekow and Zeidler[26 27] 1903	3 hrs. Chloro.	Knife cut in second left space, 5 cm. from sternum.	Resection of 3rd and 4th ribs.	L. V.: 0.5 cm.; silk sutures.	No.	No.	None.	Recovered.
51	Grekow and Zeidler[26 27] 1903	5 hrs. Chloro.	Knife cut outside left nipple.	Resection of 3rd, 4th and 5th ribs.	R. V.; near apex; 1.5 cm.; 2 silk sutures.	No.	Yes.	Pericarditis and pleuritis.	Died 60 hours later.
52	Grekow and Zeidler[26 27] 1903	4½ hrs. Chloro.	Knife cut in second left space.	Resection of 3rd to 6th ribs.	R. V.: 1.25 cm.; 5 silk sutures.	No.	No.	Pericarditis and pleuritis.	Died 13 days later.
53	Guenot[25 26] 1904	1½ hrs. Ether.	Knife cut in fourth left space.	Flap of 3rd, 4th, 5th and 6th cartilages; hinge internal.	L. V.: near apex; 1.5 cm.; 3 interrupted catgut sutures.	No.	Yes.	Pleuritis.	Died 53 hours later.
54	Guenot[25 26] 1905	1 hr. Chloro.	Knife cut in second right space, 2 cm. from sternum.	Flap of right 3rd, 4th, 5th and 6th ribs; hinge external.	R. V.: 1 cm.; 3 catgut sutures.	No.	No.	Hemorrhage in right pleura.	Died 28 hours later.
55	Guinard[18] 1904	1½ hrs. Chloro.	Poniard stab in fourth left space within nipple line.	Flap of 3rd, 4th, 5th and 6th cartilages; hinge external.	L. V.: interrupted catgut sutures.	No.	Yes.	.....	Died 18 hours later. from anemia.
56	Harte[3] 1906	Ether.	Knife cut in third left space.	Resection of 4th and 5th cartilages.	L. A.; ½ inch; interrupted catgut sutures.	No.	Yes.	Pleurisy and double pneumonia.	Died 24 days later.
57	Henriksen[37] 1902	.....	Stab in third left space, 2.5 cm. from sternum.	Resection of 3rd and 4th ribs.	L. V.: 1.5 cm.; sutured.	...	...	.....	Died 16 hours later.
58	Hesse[26 27 72] Sept., 1905	About 1 hr. Chloro.	Scissors wounds in left fourth and fifth spaces.	Flap of 3rd and 4th ribs; hinge internal.	R. V.: near apex; 3 silk sutures.	Yes.	Yes.	Pericarditis and pleuritis.	Recovered.
59	Hesse[26 27 72] Jan., 1905	1¼ hrs. Chloro.	Knife cut in fourth left space near sternum.	Flap of 3rd and 4th ribs; hinge internal.	L. V.: 0.5 to 0.75 cm.; silk sutures.	Yes.	Yes.	Pericarditis and pleuritis.	Recovered.
60	Hill[56 57 58] 1902	8 hrs. Chloro.	Knife cut in fifth left space within nipple line.	Flap of 3rd, 4th and 5th ribs; hinge internal.	L. V.: ¾-inch; 1 catgut suture.	No.	Yes.		Recovered.
61	Horodynski 1899	None.	Knife cut in third left space, 2 cm. from sternum.	Resection of 3rd, 4th and 5th cartilages.	R. V.: 1.5 cm.; 3 deep and 3 superficial sutures.	Yes.	Yes.	Pericarditis and pleuritis.	Died 3 days later.
62	Isnardi & Columbino[27 29] 1902	At once. Chloro.	Knife cut in sternum at articulation of fifth left cartilage.	Resection of 5 ribs.	R. V.: 1.5 cm.; 3 sutures.	...	Yes.	Pleuritis.	Recovered.
63	Janari 1903	About 1 hr. Chloro.	Knife cut in third left space.	Flap of 3rd, 4th and 5th ribs; hinge internal.	L. V.: 1 cm.; sutured.	Yes.	Yes.	Pleuritis.	Died 3 days later.
64	Kappeler 1904	2½ hrs. Ether.	Knife cuts over third rib and in third left space.	Flap of 3rd and 4th ribs; hinge internal.	L. A.: 1 cm.; sutured.	...	Yes.	Pleuritis. Jet of red blood with each diastole.	Recovered.
65	Kosinski 1899	.....	Knife wound in third left space.	.....	R. V.: 5 sutures.	...	...	.....	Recovered.
66	Lastaria 1901	½ hr. Chloro.	Knife cut in fifth left space at sternum.	Flap of 3rd, 4th, 5th and 6th cartilages; hinge internal.	R. V.: silk sutures.	...	Yes.	.....	Died next day.
67	Launay[10 13] 1902	4 hrs. Chloro.	Pistol ball 7 mm.; in left nipple.	Flap of 4th, 5th and 6th ribs; hinge external.	L. V.: perforated; entrance and exit closed with catgut sutures.	Yes.	Yes.	.....	Recovered.
68	Lemaitre[14 76] 1903	1 1-3 hrs. Chloro.	Knife cut in fourth left space; 25 small cuts around it.	Flap of 3rd, 4th and 5th ribs; hinge external.	L. V.: 4 cm.; 5 interrupted catgut sutures.	No.	Yes.	Pleura filled with blood.	Died 24 hours later.
69	Lemaitre[14] 1904	About 1 hr. Chloro.	Poniard stab in fifth left space near sternum.	Flap of 3rd, 4th and 5th ribs; hinge external.	R. V.: 3 catgut sutures.	No.	Yes.	Pleuritis.	Died 10 days later.
70	Lenormant[23 42 64] 1905	7 hrs. Chloro.	Pistol ball in fifth left space at sternal border.	Flap of 4th, 5th and 6th ribs; hinge external.	R. V.: 15 mm.; 3 silk sutures. Liver, stomach and bowels wounded.	Yes.	...	Syncope on table; traction on tongue and heart massage revived him.	Died 4½ hours later.
71	Lisanti 1899	Very soon. Chloro.	Knife wound in fourth left space 1 cm. within nipple.	Flap of 4th and 5th ribs; hinge above.	R. V.; silk sutures.	No.	...	Signs of cardiac aneurism at end of 2 months.	Recovered.
72	Liscia[37] 1901	None.	Stab in fourth left space.	Flap of 2nd, 3rd, 4th and 5th ribs.	R. V.: 3 sutures.	...	...	Pericarditis and nephritis.	Died 42 hours later.
73	Longo 1899	¼ hr. None.	Knife cut in fifth left space 1 cm. outside nipple.	Flap of 4th and 5th ribs; hinge above.	L. V.: 3 interrupted silk sutures.	...	...	.....	Died 15 minutes later.
74	Malizewski 1899	None.	Knife cut in fifth left space in nipple line.	Resection of 5th and 6th ribs.	L. V.: apex; 3 silk sutures.	No.	Yes.	.....	Died 26 hours later.
75	Malizewski 1899	None.	Knife cut in fourth left space without nipple line.	Resection of 3rd rib.	L. V.: 1.5 cm.; 3 interrupted silk sutures.	Yes.	Yes.	Pericarditis and pleuritis.	Died 3 days later.

TABLE OF RECORDED CASES OF SUTURE OF THE HEART—(Continued)

No.	Operator and Year of Operation.	Time between Wounding and Operation. Anesthetic.	Location of External Wound and Instrument by which Inflicted.	Method of Exposing the Heart.	Cavity Wounded and Treatment.	Drainage of		Complications.	Result.
						Pericardium.	Pleura.		
76	Manteuffel[26] 1903	9 hrs. Ether.	Pistol ball, 5 mm. in fourth left space.	Resection of 4th, 5th, 6th and 7th cartilages.	R. V.; went through anterior wall and lodged in posterior, where it could be felt. Incision and removal. Silk sutures closed both wounds.	No.	Yes.	Pericarditis; aspirated.	Recovered.
77	Marion 1898	2 hrs. Ether.	Pistol ball, fourth left space, 3 cm. from sternum.	Resection of 6th and 7th cartilages and part of sternum.	R. V.; perforated. Anterior wound sutured.	...	...	Ball did not open pericardium.	Died on table.
78	Maselli 1900	1½ hrs. None.	Knife cut 1 cm. within and below left nipple.	Resection of 6th rib.	L. V.; near apex; several sutures.	No.	Yes.	.....	Died 12 hours later.
79	Mauclaire[27] 1903	.....	Wound of left breast 3 cm. from sternum.	Flap of 3rd and 4th ribs.	Heart wound; 3 sutures.	Yes.	Yes.	.....	Died 24 hours later.
80	Mignon and Sieur 1901	1 hr.	Knife cut in fourth left space 2 finger breadths from nipple.	Resection of 4th, 5th and 6th cartilages.	R. V.; 1 cm.; silk sutures.	Yes.	Yes.	.....	Died 2 hours later.
81	Milesi[15] 1902	About 2 hrs. Chloro.	Knife wound in fifth left space.	Resection of 6th rib.	R. V.; 15 mm.; 1 deep and 3 superficial silk sutures.	Yes.	Yes.	Anemia.	Died 15 hours later.
82	Milesi 1903	About 1 hr. Chloro.	Knife cut in fourth left space near sternum.	Resection of 4th cartilage.	R. V.; 1 cm.; 1 deep and 2 superficial silk sutures.	No.	Yes.	Pericarditis.	Died 7 days later.
83	Morestin[9] 1903	21 hrs. Chloro.	Pistol ball, 8 mm. caliber, in sternum opposite fourth cartilage.	Cut through sternum.	R. V.; 1 opening; 4 catgut sucures.	Yes.	Yes.	Ball is found in cavity of R. V.	Died 19 hours later from embolism?
84	Musumeci[20] 1905	Soon. Ether and Chloro.	Knife cuts in fourth and fifth left spaces.	Flap; hinge internal.	R. V.; sutured; suture of 3 intestinal wounds also.	No.	...	.....	Died 18 hours later.
85	Nanu 1900	.....	Knife cut in third left space, 4 cm. from sternum.	Resection of 2nd, 3rd and 4th cartilages.	R. V.; 2 cm.; 2 interrupted sutures.	No.	Yes.	Pericarditis and pleurisy.	Died 4 days later.
86	Neumann[24] 1905	.....	Stab below left costal arch.	Resection of 7th to 4th cartilages.	R. V.; sutured with pericardium.	...	...	Hemorrhage.	Died ¾ hour later.
87	Nicolai 1899	1½ hrs.	Knife cut in fourth left space midway of sternum and nipple.	Resection of 4th and 5th cartilages.	R. V.; near apex; sutured.	...	...	.....	Died 12 hours later.
88	Nietert 1901	2 hrs. None.	Knife cut in fifth right space at sternum.	Resection of 5th and 6th cartilages. Pleura not opened.	R. V.; ½-inch; 3 interrupted silk sutures.	...	...	Anuria; death from shock and pericarditis.	Died 33 hours later.
89	Nietert 1901	More than 40 hrs. Chloro.	Knife cut in sixth left space within nipple line.	Flap of 5th and 6th ribs; hinge internal.	L. V.; ¾-inch; 2 sutures; may not have penetrated.	Yes.	Yes.	Pleurisy.	Recovered.
90	Nimier[3 27] 1905	25 mins. Chloro.	Knife cut in fourth left space 1 cm. from sternum.	Flap of 4th, 5th and 6th ribs; hinge external.	R. V.; 1 cm.; 4 catgut sutures; pleura not opened.	Yes.	Yes.	.....	Died next day.
91	Ninni 1898	At once. None.	Knife cut in fifth left space.	Flap of 4th and 5th ribs; hinge internal.	L. V.; admitting finger; 3 stitches.			.....	Died on table.
92	Ninni 1901	1½ hrs.	Knife cut in third left space midway of sternum and nipple.	Resection of 4th and 5th cartilages and part of sternum.	R. A.; 3 sutures.	Yes.	Yes.	Pericarditis and pleurisy.	Died 3 days later.
93	Noll 1902	1½ hrs.	Pistol ball, 7 mm. in first left space.	.....	L. V.; wound sutured.	Yes.	Yes.	Pleurisy.	Recovered.
94	Pagenstecher 1899	16 hrs. Ether.	Knife cut below and within left nipple.	Resection of 5th cartilage.	L. V.; 3.5 cm.; 3 deep sutures; 1 superficial.	No.	Yes.	Pleurisy.	Recovered.
95	Pagenstecher 1901	2½ hrs.	Knife cut in fourth left space, 1 cm. from sternum.	Flap of 4th and 5th cartilages; hinge internal.	Left coronary artery divided; both ends secured with sutures.	Yes.	Yes.	Pericarditis and pleuritis.	Died 4 days later.
96	Parlevecchio 1898	8 hrs. Chloro.	Knife cut in fifth left space	Resection of 5th rib.	L. V.; apex; 3.5 cm.; 4 sutures.	No.	No.	.....	Recovered.
97	Parozzani 1897	5 hrs. None.	Knife cut in seventh left space in nipple line.	Flap of 5th, 6th, 7th and 8th cartilages; hinge internal.	L. V.; near apex; 2 cm.; 4 silk sutures.	No.	No.	None.	Recovered.
98	Parozzani 1897	1½ hrs. None.	Knife cut in third left space; nipple line.	Flap of 4th, 5th and 6th ribs; hinge internal.	L. V.; 15 mm.; 2 sutures.	No.	No.	Necropsy. Wound of interventricular wall.	Died 48 hours later.
99	Pecori[14] 1903	.....	Knife cut in fifth left space within nipple line.	Flap of 5th and 6th ribs.	R. V.; sutured; first tore out; others placed farther from margin.			Hemorrhage.	Died on table.

100	Picone[21] 1904	Very soon.	Knife cut two finger breadths below left nipple.	Flap of 3rd, 4th and 5th ribs; hinge internal.	L. V.; sutured.	Yes.	Yes.	Hemorrhage in right pleura.	Died 2 days later.
101	Pomara 1902	None.	Knife cut in sixth left space below nipple.	Resection of 5th and 6th ribs.	L. V.; near apex; silk sutures.	No.	Yes.	Pericarditis and pleuritis.	Died 73 hours later.
102	Quenu[23] 1906	2½ hrs. Chloro.	Knife cut in third left space.	Flap of 3rd, 4th and 5th ribs; hinge external.	L. V.; 2 interrupted sutures.	No.	No.	Syncope on table; traction on tongue revived him.	Recovered.
103	Ramoni 1899	½ hr. Chloro.	Poniard stab over fifth left cartilage, 2 cm. from sternum.	Flap of 4th and 5th ribs; hinge below.	R. V.; 2 wounds; 4 sutures in one; 2 in the other.	Yes.	Yes.	.....	Recovered.
104	Rehn[8] 1896	More than 24 hrs. Chloro.	Knife cut in fourth left space, 2 cm. from sternum.	Resection of 5th cartilage.	R. V.; 15 mm.; silk sutures.	Yes.	Yes.	Pleuritis.	Recovered.
105	Rehn[8] 1900	8½ hrs. Chloro.	Knife cut in fourth left space.	Flap of 4th and 5th ribs; hinge internal.	R. V.; 10 silk sutures.	No.	No.	.....	Died 2 days later.
106	Renon[19] 1902	Chloro.	Knife cut in fourth left space 4 cm. within nipple line.	Resection of 4th and 5th ribs.	L. V.; apex; 4 interrupted catgut sutures.	.....	.....	.....	Died next day.
107	Ribas y Ribas[26] 1905	About 1 hr.	Stab in third left space, 3 cm. from sternum.	Flap of 4th, 5th and 6th ribs; hinge external.	L. V.; 1 cm.; 3 sutures.	Yes.	Yes.	.....	Died 72 hours later.
108	Riche[15 19 24 26] 1902	2 hrs. Chloro.	Knife cut in fourth left space, midway of midline and nipple.	Flap of 3rd, 4th and 5th ribs; hinge external.	R. V.; 5 mm.; sutured.	No.	No.	None.	Recovered.
109	Riche[15 19 24 26] 1904	1½ hrs. Chloro.	Pistol ball, 8 mm., in fifth left space, within and below nipple.	Flap of 3rd, 4th and 5th ribs; hinge external.	L. V.; 2 wounds; catgut sutures in both.	...	...	.....	Died on table.
110	Rosa 1899	At once. None.	Knife cut in fifth left space.	Resection of 5th, flap of 6th, 7th and 8th; hinge below.	L. V.; base; 1.5 cm.; not sure it penetrated; 1 suture.	Yes.	Yes.	.....	Recovered.
111	Rothfuchs[26] 1905	.....	Bullet.	Resection of 4th and 5th ribs.	L. V.; perforated; catgut suture in both wounds.	...	Yes.	Ball went through stomach and lodged in diaphragm.	Died 24 hours later. Peritonitis.
112	Savariaud[22] 1902	Chloro.	Knife cut in fifth left cartilage 3 cm. from sternum.	Flap of 4th and 5th ribs; hinge external, not opening pleura.	R. V.; near apex; 3 sutures.	Yes.	Yes.	Gangrene of border of lung.	Died 52 hours later.
113	Savariaud[22] 1904	Chloro.	Knife cut below and within left nipple.	Flap of 3rd, 4th and 5th ribs; hinge external.	R. V.; 3 catgut sutures.	No.	No.	Pericarditis and pleuritis.	Died 14 days later.
114	Schachowski[27] 1903	.....	Knife cut in sixth left space, near nipple line.	Resection of 5th and 6th cartilages.	R. V.; 1.5 cm.; 6 sutures.	Yes.	...	.....	Recovered.
115	Schubert[28] 1904	½ hr. Chloro.	Bullet in fourth left space.	Resection of 4th rib.	Two wounds in heart; 1 anterior, 1 posterior, both sutured with catgut.	...	...	Operator thought ball went through interventricular septum without opening a ventricle.	Recovered.
116	Schwerin 1903	¾ hr.	Sharp pointed body entered fourth left space.	Resection of 4th and 5th cartilages.	R. A.; 3 silk sutures.	Yes.	Yes.	Pericarditis, pleurisy and pneumonia.	Recovered.
117	Senni[37] 1904	Chloro.	Stab in sixth left space in nipple line.	Flap of sternum and 4th, 5th and 6th cartilages.	L. V.; 3 cm.; 6 sutures.	No.	Yes.	.....	Died 3 days later.
118	Smith[74] 1904	½ hr. Ether.	Knife cut in fourth left space, 3 cm. from sternum.	Resection of 4th and 5th ribs and part of sternum.	R. V.; continued silk sutures.	No.	Yes.	Pericarditis.	Died 7 days later.
119	Soave[29] 1907	Very soon. Chloro.	Knife cut in fifth left space, 4 finger breadths from sternum.	Flap of 4th and 5th ribs; hinge internal.	R. V.; silk sutures.	Yes.	Yes.	None.	Recovered.
120	Somerville[47] 1904	55 mins. Ether.	Knife cuts in fourth and fifth spaces within nipple line.	Skin flap and operation through 4th space; not cutting ribs.	L. V.; ragged ¾-in.; 3 interrupted silk sutures.	Yes.	Yes.	None.	Recovered.
121	Stewart, F.[1] 1902	At once. Ether.	Knife cut in fourth left space, ½-in from sternum.	.....	L. V.; ¾-inch; 6 catgut sutures.	...	...	.....	Died 2 days later.
122	Stewart 1904	¾ hr. Ether.	Knife cut in second left space, 1 inch from sternum.	Flap of 3rd and 4th ribs; hinge internal.	L. V.; ¾-inch; 6 continuous silk sutures.	Yes.	Yes.	Pneumonia and wound infection.	Recovered.
123	Stewart, G. D. 1902	1½ hrs. Chloro.	Knife cut in 5th space; ½ in. left nipple line.	Fifth rib resected.	L. V.; ¾ in. sutered; 6 stitches.	Yes.	Yes.	Pericarditis and pleuritis.	Died 2½ days later.
124	Steyner[37] 1902	Chloro.	Stab about fifth rib near sternum.	Resection of 4th and 5th ribs.	R. V.; 4 sutures.	Yes.	Yes.	.....	Recovered.
125	Stude 1904	About 2 hrs.	Knife cut in chest.	Flap of sternum and left 4th and 5th cartilages; hinge on right.	L. V.; 2.5 cm.; sutured.	...	...	Death due to pneumothorax.	Died on table.
126	Sultan, C.[11 27] 1905	.....	Two stabs in fifth left space, 2 cm. within nipple line.	Flap of 5th, 6th and 7th ribs; hinge external.	L. V.; 7 mm.; 4 sutures.	No.	No.	Necropsy; one liter of blood in pleura. R. V. found wounded.	Died 48 hours later.

TABLE OF RECORDED CASES OF SUTURE OF THE HEART—(Continued)

No.	Operator and Year of Operation.	Time between Wounding and Operation. Anesthetic.	Location of External Wound and Instrument by which Inflicted.	Method of Exposing the Heart.	Cavity Wounded and Treatment.	Drainage of		Complications.	Result.
						Pericardium.	Pleura.		
127	Sultan, C.[11 27] 1906	5 days.	Knife cut in second left space, a finger breadth within nipple.	Flap of 3rd, 4th and 5th ribs; hinge internal.	L. V.; silk sutures tore out, but others were placed farther from edge.	Yes.	Yes.	None.	Recovered.
128	Sultan, G.[34] 1907	30 hrs. Chloro.	Pistol ball, 9 mm.; in fifth left space inside nipple line.	Flap of sternum and left 4th and 5th cartilages; hinge on right.	L. V.; cavity not opened; 3 silk sutures.	...	Not opened.	None.	Recovered.
129	Thiemann[7] 1906	About 4 hrs. Chloro.	Needle in 4th left space, 31 mm. in tissues.	Resection of 4th and 5th ribs; needle fixed at lower border of 4th rib.	R. V.; 1 cm. and R. A. 1.5 cm.; first closed with 1 catgut suture; second with 4.	Yes.	Yes.	Pericarditis.	Recovered.
130	Travers[49] 1906	About 3 hrs. Chloro.	Iron picket wound through lower end of sternum.	Flap of 3rd, 4th and 5th left cartilages and part of sternum; hinge below.	R. V.; 2¼ inches; 23 sutures; 2 fragments of bone removed from ventricle.	Yes.	Yes.	Death due to clot in pericardium.	Died 10 days later.
131	Tscherniachowski[27 36 48] 1904	Less than 1 hr. Chloro.	Knife cut in fourth left space, internal to nipple.	Resection of 4th cartilage.	L. V.; 1.5 cm.; 3 silk sutures; mattress.	Yes.	Yes.	None.	Recovered.
132	Tuzzi 1899	None.	Knife cuts in fourth left space near sternum.	Resection of 4th and 5th ribs.	L. V.; 2 wounds; 1 penetrating; sutured.	No.	Yes.	Pericarditis and pleuritis.	Died 21 days later.
133	Vaughan[24] 1901	Less than 1 hr. Ether.	Knife cut dividing fifth left cartilage.	Flap of 4th and 5th cartilages; hinge above.	L. V.; 2.5 cm.; 7 continuous silk sutures.	...	...	.....	Died on table.
134	Vaughan[24] 1908	About 1 hr. Ether.	Knife cut in fourth left space near nipple.	Flap of 4th, 5th and 6th cartilages; hinge internal.	R. V.; 1-3-inch; 12 continuous silk sutures in 2 rows and 2 ligations.	No.	No.	Delirium tremens.	Recovered.
135	Velo 1902	About ½ hr.	Knife cut in sixth left space in nipple line.	Resection of 5th and 6th ribs.	L. V.; apex; 15 mm.; non-penetrating; 3 catgut sutures.	Yes.	Yes.	Pleuritis.	Died 3 days later.
136	Vince[46] 1903	About 12 hrs. Chloro.	Poniard stab in fifth left space.	Flap of 5th, 6th and 7th ribs.	L. V.; 3 silk sutures.	No.	...	.....	Died next day.
137	Vogel 1903	At once. Chloro.	Wound in fourth left space near sternum.	Resection of 4th and 5th cartilages.	R. V.; 1.5 cm.; 5 silk sutures; jet in diastole.	No.	Yes.	Pericardium opened and drained on second day. Sutures in heart were finally expelled.	Recovered.
138	Walker 1900	None.	Knife cut below left costal arch.	Abdomen opened; resection of 6th and 7th cartilages.	R. V.; sutured; tore out.	...	...	Diaphragm wounded.	Died ¾ hour later.
139	Walker 1901	4 hrs.	Knife cuts 20, in heart region; most of them in fourth left space.	Resection of 4th rib.	8 wounds of heart; L. V. penetrated twice; sutured.	Yes.	Yes.	.....	Died 1½ days later.
140	Watten 1900	6 hrs. Chloro.	Knife cut in fourth right space near sternum.	Flap of 3rd and 4th ribs on right; hinge external.	R. V.; 2 cm.; 3 sutures.	Yes.	Yes.	.....	Recovered.
141	Watts 1908	½ hr. Ether.	Knife cut in second left space near sternum.	Resection of 2nd and 3rd ribs.	R. V.; root of pulmonary artery; sutured.	No.	Yes.	Blood in pericardium.	Died 1 month later.
142	Weinlechner 1904	Very soon. Chloro.	Knife cuts in third and fourth left spaces; within nipple line.	Resection of 5th rib.	L. V.; 5 mm.; silk sutures; 2 wounds.	Yes.	Yes.	Pericarditis and pleuritis.	Died 49 hours later.
143	Weiss[37] 1904 (?)	8 hrs.	Poniard stab in heart region.	Resection of ribs and laparotomy.	R. V.; sutured.	...	Yes.	Pleuritis.	Died 15 days later.
144	Wendel[18 27] 1905	About 5 hrs. Chloro.	Knife cut in fourth left space, near sternum.	Flap of 4th and 5th cartilages; hinge external.	L. V.; 1 catgut suture.	Yes.	Not opened.	Pericarditis.	Recovered.
145	Wennerstrom ????	2 hrs.	Fragment of glass in third left space near sternum.	Resection of 4th, 5th and 6th cartilages.	L. V.; 2 cm.; 1 catgut and 4 silk sutures.	No.	Yes.	3 gauze sponges left in pleura; removed on 14th day.	Recovered.
146	Wilms[27] 1906	2 hrs.	Pistol ball, 6 mm.	Intercostal incision.	L. V.; perforated; both sutured.	No.	No.	None.	Recovered.
147	Wolff[15] 1903	.....	Knife cut.	.....	R. V.; 2 cm.; sutured.	No.	No.	Pericarditis and pleuritis.	Died 14 days later.
148	Ziembiski[37] 1903	.....	Stab wound.	.....	Heart wound; sutured.	...	...	.....	Died.
149	Zulehner and Brenner 1901	24 hrs. Chloro.	Knife cuts, 12; 1 in sixth left space; 1 opening abdomen.	Resection of 5th, 6th and 7th cartilages.	R. V.; 2 cm.; sutures tore out.	...	...	Myocardium very friable.	Died on table.
150	Zulehner and Brenner 1901	.....	.....	.....	R. V.; 1 cm.; catgut sutures.			.....	Recovered.

Original Articles

A DIPHTHERIA EPIDEMIC

ITS BEARING ON THE QUESTION OF BACILLUS CARRIERS, ANIMAL CARRIERS, AND THE NECESSITY OF MORE STRICT QUARANTINE REGULATIONS *

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After an interval of several years of freedom from diphtheria, the first case developed at the Connecticut Hospital for Insane early in April, 1907. From then until May 15, 1908, there occurred ninety-two cases, fifty-seven of which were in employés and thirty-five in insane patients. During this period the throats of 4,081 healthy individuals were examined, with the result that ninety-five (2.08 per cent.) revealed the presence of the Klebs-Loeffler bacillus, so that the total number of people under quarantine was 187.

SOURCE OF INFECTION

The etiology in the greater number of cases can probably be ascribed to bacillus carriers.. The source of infection in the first case can undoubtedly be traced to a visitor, the second case likewise possibly arose from an unknown outside source, but the epidemic was undoubtedly fostered by bacillus carriers, human and animal.

In the first case the patient developed a sharp attack of tonsillar diphtheria a few days following a visit from a relative who at the time was complaining of a severe cold and sore throat. This patient was at once quarantined in the isolation hospital along with a patient sleeping in the next bed who was found to be a bacillus carrier. The dormitory in which they slept was fumigated, while the entire ward, including walls and furniture, was thoroughly cleaned with soap and water and then treated with a corrosive sublimate solution. Identical preparations were taken throughout the epidemic in regard to fumigation of rooms, clothing, etc., of those affected with the disease. Each room was sealed and fumigated with formaldehyd gas and then thoroughly cleaned. Whenever others occupied the same room they were given an immunizing dose of antitoxin—500 to 1,000 units—a bichlorid of mercury bath, and their clothing was thoroughly fumigated. The same day prophylactic cultures were taken from the throats of all fellow patients and attendants, resulting in the isolation of all found to be bacillus carriers. Patients were not discharged from the isolation hospital until they had had three successive negative cultures up to Aug. 15, 1907. After this date four successive negative throat and two nose cultures were insisted on.

The third case developed in another building, North, just one month following the discharge of the above cases, in a nightwatch who had in no way come in contact with the former patients. It is possible that this case, like the first, had an outside origin; on the other hand, a possible source of infection was the patient in Case 4. Another ten days and Case 8 developed in a kitchen maid working with patients 4 and 5.

It would be unprofitable as well as wearisome to detail each individual case and its relation to others. A careful analysis sometimes reveals a tangible source of infection, i. e., contact with cases before discovery of disease or with carriers, while in others it was impossible to trace any direct or indirect connection.

It was noteworthy that the Middle and South Hospitals were remarkably free from the disease, the former having four cases and the latter two cases, although patients from the Middle Hospital ate in the congregate dining-room.

There was an interval of one month between the discharge of the first case from quarantine and the onset of Case 2. Then there was an interval of two months, from the latter part of September to November 24, when there were no new cases, and another interval of freedom for one month in April, 1908, before the final subsidence of the disease in May, 1908.

During the twelve months ninety-two patients were quarantined with clinical diphtheria. Ninety-five apparently healthy individuals whose throats showed the presence of Klebs-Loeffler bacilli were also isolated.

In the ninety-two cases of diphtheria forty-four of the patients showed distinct membranes, the remainder being catarrhal. There were no fatal cases. All yielded promptly to the antitoxin. It was noteworthy that antitoxin had little or no effect in clearing the throat of the bacilli, either in the clinical cases or in the bacillus carriers, as large doses were given for this purpose without any effect. Many of those isolated as the results of prophylactic cultures presented congested throats.

Hypertrophied tonsils were noted thirty-two times in the 187 individuals isolated, and it was very difficult to free these patients from the germs. The little crypts and irregularities in a hypertrophied tonsil afford a good hiding place as well as breeding ground for micro-organisms, hence these patients often become living culture tubes and a menace to the health of the individual and the community.

After November, when a case of diphtheria developed, cultures were taken from all persons in that ward at once, then an interval of several days was allowed to elapse before the process was repeated. Astonishing results were often obtained from these second cultures, more bacillus carriers frequently being brought to light at this time than at the first. In several instances of clinical diphtheria the first culture was negative, owing in all probability to the faulty technic of taking the culture, to the temperature of the incubator, or to overgrowth of other organisms.

Many times the bacilli persisted in the nose long after they disappeared from the throat, and in some cases in which it was difficult to obtain throat cultures the diagnosis was made from nose cultures alone. The swab was passed up the nose as far as possible without violence—a method that might be used with advantage in cases of young children from whom throat cultures are often obtained with difficulty.

The average length of time spent in quarantine for cases of diphtheria was 20.8 days. Two cases remained over 50 days, the longest time being 80 days.

The average length of time for the bacillus carriers was greater, 30.2 days. The germs persisted in the throats more than 50 days in twelve instances, including three cases of 106 days, 107 days and 111 days, respectively.

In a population composed almost entirely of adults no conclusions could be drawn from the age of those affected. Two of the patients were under 5 years of age, while fifty were between the ages of 20 and 30 years, seventeen between 30 and 40, nine between 40 and 50, four between 50 and 60, five between 70 and 80, and one over 80 years. While the disease is no respecter of age, it shows a predilection for those under 30 years.

* From the Laboratory of the Connecticut Hospital for Insane.

PRESENCE OF KLEBS-LOEFFLER BACILLI IN SUPPOSEDLY NORMAL INDIVIDUALS

Appreciating that the possible source of infection might be bacillus carriers, we made wholesale prophylactic cultures, wherever there was any chance of contact, involving entire wards and buildings. This afforded a splendid opportunity to judge of the percentage of cases of normal persons infected with Klebs-Loeffler bacilli at the time of an epidemic. Four thousand and eighty-one prophylactic cultures were taken, 2.08 per cent. of which showed diphtheria bacilli.

According to a report of the Massachusetts Board of Health[1] persons not exposed to the contagion revealed the germ on cultures in 3 per cent. of cases, but in those exposed to the disease the percentage was from 8 to 50. Park[2] says in the examination of the throats of 330 healthy people he discovered Klebs-Loeffler bacilli in 9.7 per cent. of cases, but in 7.3 per cent. of these cases the bacilli were attenuated or nonvirulent.

Dr. E. Burvill Holmes[3] of Philadelphia states that, in the Municipal Hospital, of cultures taken from nurses and physicians (eighty to ninety people) caring for diphtheria patients, only two showed the presence of diphtheria bacilli. Both were new nurses and went down with the disease the day following the report. His experience has led him to the belief that few really healthy individuals harbor the germ.

Our experience of 2.08 per cent. of bacillus carriers, found by prophylactic culturing during the epidemic, showed that the majority of these patients had considerable congestion of the throat, and, of course, it would be impossible to say how many of these individuals would have developed the disease if left without treatment (antitoxin), which was administered as soon as the carrier was quarantined.

Inoculation for testing the virulence of the organism was only made in six instances, and this at the end of the epidemic. The organisms were isolated by means of Dr. North's special medium, then grown in bouillon for forty-eight hours. The dose given was 0.2 per cent. of the body weight of the test animal, because larger doses of a so-called non-virulent organism may produce death, showing that the difference in virulence is one of degree only.

Germs from four patients presenting no clinical symptoms of the disease were selected for the virulence test. The diphtheria bacilli from two of these throats were rapidly fatal to the guinea-pigs, while those taken from the other two caused only a temporary indisposition in the test animals, plainly showing that while their virulence was attenuated they had some toxic properties.

In another instance the germs tested were obtained from the throat of a little boy presenting no clinical symptoms other than enlarged ragged tonsils. The inoculated guinea-pig died in forty-six hours. This lad's sister had had a typical attack of tonsillar diphtheria. Another inoculation was made with bacilli isolated from a case of clinical diphtheria in which the bacilli persisted in the throat for one month after the subsidence of clinical symptoms. The guinea-pig in this instance promptly succumbed. From this it will be seen that the virulence of diphtheria bacilli vary, so that if it had been feasible to make tests of virulence in all cases of bacilli found by means of prophylactic cultures the number isolated might possibly have been decreased or their time in quarantine diminished.

This, however, was not possible, for it taxed the capacity of the laboratory to keep up with the prophylactic cultures taken in the hope of segregating all persons found infected. Consequently it was considered the wisest course to find and isolate every individual carrying Klebs-Loeffler bacilli in their throats or noses, considering every such individual a menace to the health of the institution whether presenting clinical symptoms or not. This course would neither be necessary nor wise in private practice, for the conditions do not require it and it would cause unnecessary hardship and apprehension. It would, however, seem the only rational procedure to adopt in large institutions of the character of the Connecticut Hospital for the Insane, in almshouses, jails or schools, the only alternative being the immunization of all inmates, which would necessitate probably at least two or three doses of antitoxin all around before the disease could be exterminated. This would involve a large outlay of money with 2,500 patients and 500 employés, but would undoubtedly eradicate the disease; therefore, would justify the expenditure in case the epidemic could not be controlled by proper quarantine regulations. Immunization could probably be adopted in smaller institutions, as was done at Saranac Lake.[4]

One of the nurses at the isolation hospital caring for the diphtheria patients had a mild attack of catarrhal diphtheria two weeks after the administration of 1,000 units of antitoxin. Aside from this one instance, the disease did not develop in those immunized, of whom there were many.

Three months after the subsidence of the epidemic it seemed advisable to ascertain if there were any permanent bacillus carriers among our population. To this end 506 cultures were taken from patients and employés in different buildings, resulting in our finding Klebs-Loeffler bacilli in six patients (1.1+ per cent.), three of whom had been under quarantine as bacillus carriers in the previous epidemic but none of whom had suffered from angina. Three patients showed a fairly large number of Klebs-Loeffler bacilli in the throat cultures, but the others contained very few. All were acid producers in glucose bouillon. Pure cultures from these six cases in every instance proved harmless to guinea-pigs.

The number of bacillus carriers was evidently much reduced (from 2.08 per cent. to 1.1+ per cent.) since the epidemic, all of the latter being non-virulent, while of the five tested during the epidemic three were virulent. It seems to me that this justifies the conclusion that about half the bacillus carriers during the epidemic harbored virulent bacilli, while the remainder probably were harmless and might have been saved the inconvenience of quarantine had our laboratory force been sufficient to permit us to isolate the bacilli and test their virulence in every instance.

NUMBER OF NEGATIVE CULTURES FOR RELEASE FROM QUARANTINE

Until August 15, as was usual, we required three negative throat cultures for discharge from quarantine. The occurrence of other cases in persons in contact with those released from isolation indicated clearly that three consecutive negative cultures were not sufficient to

1. Report Mass. Assoc. Board of Health, July, 1902.
2. Pathogenic Bacteria and Protozoa, New York and Philadelphia, 1905, p. 197.
3. N. Y. Med. Jour., 1908, vol. lxxxvii, p. 534.
4. Brown, Allen and Lupton: Am. Jour. Med. Sci., 1907, cxxxiii, 297.

prevent the spread of the epidemic. Careful comparison of results of cultures shows clearly the wisdom of this apparently severe restriction, since in many instances a positive culture was obtained from either nose or throat on the fourth day following three negative cultures, the bacilli persisting often for more than three weeks. In addition, we found that in twenty-five patients who had been discharged from isolation, one having been isolated over two and a half months, bacilli were again present when prophylactic cultures were made. This, of course, may have been a fresh infection, which would show the greater susceptibility of those once suffering from the disease. On the other hand, it is possible that in some crypt of the tonsil some germs may have escaped even four carefully taken and carefully examined cultures.

The uselessness of attempting to combat an epidemic by accepting two negative cultures as a passport, which is the regulation laid down by the Connecticut State Board of Health, is demonstrated by the fact that in fifty-five cases the cultures were positive and remained positive, on an average, twenty-three days after they had been negative for three days. In one instance ninety-six days elapsed before four negatives were obtained. The epidemic at Willard State Hospital,[5] which raged from 1899 to 1904, bears testimony to the futility of attempting to extinguish an epidemic as long as patients are released from quarantine on two negative cultures.

ANIMALS AS A SOURCE OF INFECTION

The fact of the persistence of the disease in spite of the elaborate and careful methods of fumigation and isolation led to the suspicion that there was some source of infection other than human carriers, so we turned our attention to the rats.

On March 5 six rats were shot at the mouth of the sewer which received the waste from the isolation hospital. Cultures were taken from the throats, each paw, tail, and fur covering abdomen of the animal. All of these cultures showed rank growths composed of many varieties of organisms, but one from the fur and two from throats presented many organisms, which in their morphology and staining reaction could not be distinguished from the Klebs-Loeffler bacillus. On March 12 nineteen cultures were taken from the sewage itself, resulting in similar growths to the above. All these cultures showed suspicious bacilli, but three undoubtedly contained Klebs-Loeffler bacilli. This in spite of the utmost vigilance in the disinfection at the isolation hospital, where all burnable waste was disposed of by fire, and everything else was supposed to be disinfected by bichlorid of mercury, or phenol (carbolic acid) before passing into the sewer.

Two days later ten cultures were made from a cat which was seen to frequent the vicinity of the sewer, with a positive result from cultures from fur of tail and throat. Twelve more cultures made from three rats gave one suspicious and one positive culture. The sewage was undoubtedly contaminated from some unknown carelessness at the isolation hospital. The rats became infected from frequenting the sewer pipe, and they in turn might have consorted with the house rats, or the cold weather may have driven many of them into the buildings themselves, in this way distributing the bacilli by contact with clothing and articles of daily use, thus completing the vicious circle.

5. Russell and Salmon: Report of an Epidemic of Diphtheria in the Willard State Hospital, Sixteenth Annual Report N. Y. State Commission in Lunacy, October, 1904.

Another possible avenue of infection was through the cats who often went hunting rats about the sewer, returning to the buildings when they were weary making a sort of travesty on the old rhyme of "The House That Jack Built." The isolation hospital infected the sewer; the sewer infected the rats; the rats infected the cats; and the cats infected the people.

Another point favoring the animal-carrier supposition was that the buildings farthest from the sewer suffered least from the disease, and the Farm House and Silver Mine Buildings, a mile or more away from the Main Hospital, were entirely exempt. With renewed vigilance at the isolation hospital, and a concerted effort at the extermination of the rats and cats, with warmer weather and consequent lack of incentive for the rats to seek shelter in the buildings, the epidemic slowly subsided.

Two cases of diphtheria were recently reported, undoubtedly due to a pet dog that was discovered to be suffering from the disease. Another instance was brought to my notice of a house epidemic in which three cases were due to a pet cat which slept with the children, cultures from the cat's throat showing almost a pure culture of Klebs-Loeffler bacilli. In the *Medical Record*, Jan. 18, 1908, in a letter to the editor, Dr. William B. Meany, of New York, calls attention to four cases of diphtheria contracted from a pet cat, also to a case supposedly transmitted by a chicken brought from an infected farm.

One must also think of the *Cimex lectularius* (bedbug) as a disseminator of germ diseases. No matter how thorough may be your quarantine, it is impossible to restrict the movements of these pests when present, and they may carry the bacteria from room to room or house to house.

COMPARATIVE VALUE OF THE NEISSER AND LOEFFLER STAINS

So much depends on the bacteriologic report, and so much trouble results from incorrect diagnosis that great care must be exercised in this work. In the report of the epidemic, lasting four years at Willard Hospital, New York, they were able to make a diagnosis on cultures grown from six to nine hours, and found smears directly from swabs of no value. In my experience, cultures grown less than twelve hours have proved of doubtful value. In plates for the isolation of pure cultures, I have found it almost impossible to pick the colonies of Klebs-Loeffler bacilli under twenty-four hours, while thirty-six hours give a greater number of successful findings. The findings from smears made directly from swabs, using the Neisser stain, have, with few exceptions, been corroborated by subsequent cultures, giving us a rapid method of diagnosis which as a time saver to the patient more than compensates for the extra time and care required in searching the slide. Often the time required is the same as for examinations of a culture. When, however, the organisms are few in number, it may necessitate a search of one-half to three-quarters of an hour.

To the general practitioner, where time is an item, with a membrane in the throat, the diagnosis can usually be made directly from the swab, thus giving the patient the advantage of from twelve to twenty-four hours, which is frequently of the utmost importance. Out of nineteen diphtheria cases in this epidemic in which the swab method was adopted, the diagnosis from the swab was negative only twice when subsequent cultures proved

positive. One of these negative results was in a child 4 years old from which it was almost impossible to get any exudate on the swab, while in the other case the patient had little membrane.

Dr. Holmes[3] states that after the examination of many smears from the nose and throat of patients admitted to the Municipal Hospital, "My conclusion is that they are of great value, indeed, in experienced hands as valuable as cultures, because even the latter, owing to careless culturing for the most part, do not always reveal the true state of affairs." "Of special value are they when an immediate diagnosis is required." Dr. Holmes calls attention to the characteristic grouping of diphtheria organisms in smears which I have often noticed. He says, "The grouping of the bacilli, rather than the morphology, is the more valuable aid in the identification of the bacillus in both smear and culture." "In looking over a smear containing the bacilli, they will be found in most part lying together in groups of two or more, paralleling each other or radiating from each other like the spokes of a wheel."

This grouping I have found of great value, especially where the polar staining and granules are not sharply defined. There is a microscopic picture which, by experience, strikes the eye with certain conviction, even if the organisms are not numerous.

No account was kept of the number of times when the swab was negative, substantiated by subsequent negative cultures, but they were numerous.

"A small percentage of virulent bacilli fail to take the Neisser stain." This statement by Park[2] led to a comparative test of the Neisser and Loeffler stains in the first 700 cultures examined. As a result of this test, it may be said that the Neisser stain never failed to differentiate in cases differentiated by the Loeffler stain.

The Neisser stain, furthermore, had distinct advantages: (a) there is no danger of over or understaining; (b) it greatly facilitates microscopic examinations, reduces eye strain, and is conducive to more rapid and accurate work, which is a matter of considerable importance when a single operator must examine from 50 to 125 specimens in a single day; (c) it can be satisfactorily used in the examination of smears made directly from swabs, because the exudate is decolorized and therefore can not befog the bacilli; and (d) the bacilli appear more numerous both in smears and cultures. Latterly, we have frequently used the No. 1 solution of Neisser without No. 2 and with good results.

SUMMARY

1. The chief source of infection in this epidemic were latent cases (bacilli carriers), rats and cats.

2. One negative throat culture is insufficient for diagnosis.

3. Two and even three successive negative throat and nose cultures do not constitute sufficiently strict quarantine regulations to prevent the spread of diphtheria.

4. In institutions in which large numbers are congregated, at least four successive negative cultures, including at least two nose cultures, are imperative.

5. All healthy individuals carrying bacilli in their throats should be isolated during a time of epidemic in institutions, unless wholesale immunization can be undertaken.

6. The isolation of bacilli carriers in private practice is neither reasonable nor expedient.

7. Bacillus carriers harbored the bacilli longer than did the clinical cases of diphtheria.

8. All hypertrophied tonsils should be treated as a prophylactic measure.

9. The Neisser stain has distinct advantages over the Loeffler stain, and no disadvantages.

10. Stained smears are of great value for immediate diagnosis.

11. The early diagnosis, made possible by careful culturing, permitting of early treatment with antitoxin, undoubtedly diminished the severity of the individual case, and the severity and duration of the epidemic.

12. Of healthy individuals during epidemic 2.08 per cent. were found to be bacillus carriers.

13. When no epidemic existed non-virulent Klebs-Loeffler bacilli were found in 1.1+ per cent. of healthy individuals.

14. No virulent Klebs-Loeffler bacilli were found in 506 throat cultures three months after epidemic.

15. Two weeks is the limit of immunization for 1,000 units of intoxication.

Much credit and thanks are due to the different members of the staff of the hospital for their painstaking efforts in obtaining cultures, and to Dr. Charles E. North for a formula for media which minimized the work of isolating the Klebs-Loeffler bacillus.

TEN YEARS OF AMERICAN SANITATION IN THE PHILIPPINE ISLANDS

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Prefatory to any discussion of our ten years' sanitary campaign in the Philippine Islands, it is necessary to touch on the condition of affairs existent at the time of the arrival on the scene of American sanitary administrators.

CONDITIONS PRIOR TO AMERICAN OCCUPATION

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positive. One of these negative results was in a child 4 years old from which it was almost impossible to get any exudate on the swab, while in the other case the patient had little membrane.

Dr. Holmes[3] states that after the examination of many smears from the nose and throat of patients admitted to the Municipal Hospital, "My conclusion is that they are of great value, indeed, in experienced hands as valuable as cultures, because even the latter, owing to careless culturing for the most part, do not always reveal the true state of affairs." "Of special value are they when an immediate diagnosis is required." Dr. Holmes calls attention to the characteristic grouping of diphtheria organisms in smears which I have often noticed. He says, "The grouping of the bacilli, rather than the morphology, is the more valuable aid in the identification of the bacillus in both smear and culture." "In looking over a smear containing the bacilli, they will be found in most part lying together in groups of two or more, paralleling each other or radiating from each other like the spokes of a wheel."

This grouping I have found of great value, especially where the polar staining and granules are not sharply defined. There is a microscopic picture which, by experience, strikes the eye with certain conviction, even if the organisms are not numerous.

No account was kept of the number of times when the swab was negative, substantiated by subsequent negative cultures, but they were numerous.

"A small percentage of virulent bacilli fail to take the Neisser stain." This statement by Park[2] led to a comparative test of the Neisser and Loeffler stains in the first 700 cultures examined. As a result of this test, it may be said that the Neisser stain never failed to differentiate in cases differentiated by the Loeffler stain.

The Neisser stain, furthermore, had distinct advantages: (a) there is no danger of over or understaining; (b) it greatly facilitates microscopic examinations, reduces eye strain, and is conducive to more rapid and accurate work, which is a matter of considerable importance when a single operator must examine from 50 to 125 specimens in a single day; (c) it can be satisfactorily used in the examination of smears made directly from swabs, because the exudate is decolorized and therefore can not befog the bacilli; and (d) the bacilli appear more numerous both in smears and cultures. Latterly, we have frequently used the No. 1 solution of Neisser without No. 2 and with good results.

SUMMARY

1. The chief source of infection in this epidemic were latent cases (bacilli carriers), rats and cats.

2. One negative throat culture is insufficient for diagnosis.

3. Two and even three successive negative throat and nose cultures do not constitute sufficiently strict quarantine regulations to prevent the spread of diphtheria.

4. In institutions in which large numbers are congregated, at least four successive negative cultures, including at least two nose cultures, are imperative.

5. All healthy individuals carrying bacilli in their throats should be isolated during a time of epidemic in institutions, unless wholesale immunization can be undertaken.

6. The isolation of bacilli carriers in private practice is neither reasonable nor expedient.

7. Bacillus carriers harbored the bacilli longer than did the clinical cases of diphtheria.

8. All hypertrophied tonsils should be treated as a prophylactic measure.

9. The Neisser stain has distinct advantages over the Loeffler stain, and no disadvantages.

10. Stained smears are of great value for immediate diagnosis.

11. The early diagnosis, made possible by careful culturing, permitting of early treatment with antitoxin, undoubtedly diminished the severity of the individual case, and the severity and duration of the epidemic.

12. Of healthy individuals during epidemic 2.08 per cent. were found to be bacillus carriers.

13. When no epidemic existed non-virulent Klebs-Loeffler bacilli were found in 1.1+ per cent. of healthy individuals.

14. No virulent Klebs-Loeffler bacilli were found in 506 throat cultures three months after epidemic.

15. Two weeks is the limit of immunization for 1,000 units of intoxication.

Much credit and thanks are due to the different members of the staff of the hospital for their painstaking efforts in obtaining cultures, and to Dr. Charles E. North for a formula for media which minimized the work of isolating the Klebs-Loeffler bacillus.

TEN YEARS OF AMERICAN SANITATION IN THE PHILIPPINE ISLANDS

W. E. MUSGRAVE, M.D.
MANILA, P. I.

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PERSONAL HYGIENE

When all is said about our public health measures and the wonderful effect their enforcement has had on general conditions in the islands, the greatest factor for good remains to be mentioned, and that is personal hygiene. This great influence, fostered and improved by publications, by experience and contact with trained and evenly balanced minds, has accomplished results among the better class of natives, who could not have been reached by any other method. It has been so conducted that, we might say, certain of its elementary essentials have become fashionable fads. It is by this influence, almost entirely, that the drinking of safe waters and the eating of safe foods has become a strict rule in all homes worthy of the name; and to it also is due that modification in American costume which has contributed so largely to our success in living here. Of course there are people of peculiar minds who still "do not believe in germs." Formerly they were much more numerous, but the germs have so thinned their ranks that those remaining have much less to say, and the foolhardiness of those who have gone has been such a shining example of the right of personal hygiene that the spread of its influence has been greatly increased.

PHILIPPINITIS

There are two sets of extremists in America, one supporting the idea that people can live as long and as well in the tropics as elsewhere, and the other maintaining that no white race can continue to live and propagate the species in the hot countries.

Undoubtedly both views are wrong. There is not the slightest doubt that there is a climatic (using the word in its broadest sense) influence on both the foreigner and the native in the tropics which produces that condition known among medical men as tropical neurasthenia and among the lay public as "Philippinitis." Just what it is which brings this condition about is not clear, but that it is a condition, and that it affects people regardless of race, nationality or color is an equally positive fact. The facts about it are just about as clear as they are about neurasthenia in any other country—which is not saying much. I have not the time or space to go into the subject, in even such detail as is possible, but I might add that it is never a fatal ailment, it is not contagious, and it should not keep people from going to a tropical country.

RESULTS ACCOMPLISHED

As a result of the combined influence of the forces concerned, Manila is to-day quite free from epidemics and should remain so in the future. At the time of our occupation of Manila, although the Spanish government had vaccine laboratories in operation, smallpox was epidemic and received no more attention from the officials than did any other ordinary disease. A compulsory vaccination law was passed and executed by the American military administration, and revaccination has been going on steadily for these ten years, until now the entire civilized population of the islands is protected and smallpox has been reduced from a pest to sporadic cases, which, when they occur in Manila, are cared for in the splendidly equipped new hospital built especially for this service.

Diseases transmitted by water and food, such as dysentery, cholera, typhoid fever, etc., constitute by far the most important group of diseases found in the tropics. When we came to Manila there was practically no safe drinking water in the city, while to-day the daily output of bottled carbonated waters alone is over 50,000 bottles, and in addition to this there is a distilled water capacity of over 20,000 gallons per day. Most of these waters are used for drinking and culinary purposes. Ten years ago cold storage was very limited, and as a consequence spoiled meats and vegetables were common. In addition to all this, dirty workers and bad methods of transporting foodstuffs made bad conditions worse. It is a wonder that so many of us lived to tell the tale. From the beginning gastrointestinal and other water-borne diseases were epidemic and continued so for the first few years. Now, however, dysenteries of all kinds have been reduced to merely sporadic cases, and a case of the acute kind is rarely seen. Typhoid fever is comparatively rare, only 75 cases occurring in the last 5,000 patients admitted to my clinic in St. Paul's Hospital. Cholera epidemics have been reduced to occasional small outbreaks and should not ever again assume serious proportions in Manila.

Parasitic and other less important diseases have been reduced in like proportion in the capital.

Plague has never had a serious hold in Manila, and with the present system of cleanliness, destruction of rats and notification, there is no danger of the disease ever becoming epidemic here.

Leprosy has been common in the Philippines for centuries, and, while our Spanish predecessors, or rather one order of the Catholic Church, maintained a leprosy hospital in Manila, it was entirely insufficient for the needs of the situation, and lepers were everywhere to be seen on the streets and in public places. At the present time there is a satisfactory leper colony in good working order and the segregation of the lepers of the islands is almost completed.

I am perfectly justified in saying that in ten years America has made Manila one of the cleanest, healthiest and most attractive cities under the flag, and that if the present rate of improvement continues other American cities will have to look to their laurels.

THE TREATMENT OF SCIATICA BY DEEP PERINEURAL INFILTRATING INJECTIONS OF SALT SOLUTION *

D'ORSAY HECHT, M.D.

Assistant Professor of Nervous and Mental Diseases, Northwestern University Medical School; Consulting Neurologist to the Cook County Institutions for the Insane, Dunning, Ill.; Attending Neurologist to the Michael Reese and St. Elizabeth's Hospitals

CHICAGO

Nowhere in the domain of nerve pains is the agony of neuralgia, its chronicity and rebelliousness to treatment so well illustrated as in tic douloureux and sciatica. Consistent with the dearth of facts concerning the etiology and pathogenesis of these clinical entities, some of the applied therapy has been unreasonable and much of it unavailing. In this paper I shall report some personal experiences with the deep intraneural or perineural injections of salt solution under pressure for sciatica, in the hope that my conclusions, added to those of others before me in the literature, may gain recognition for the underlying principle and facilitate

* Read at the meeting of the Mississippi Valley Medical Association, Louisville, Oct. 13-15, 1908.

a wider adoption of this particular method. In the choice of what seemed to me to be the best solution and technic—in short, the best method—I acknowledge that I have borrowed generously from the clinical reports, conclusions and discussions on this subject by Lange, Umber, Alexander, Schloesser, Fischler, Brissaud, Tapon and Sicard, Levy and Baudoin and Schlesinger.

My chief incentive for approaching sciatic pain conditions was the uniform success that has obtained in twenty-four cases of trigeminal neuralgia treated by me to date with seventy-eight injections of alcohol, after the manner original with Levy and Baudoin, and described in my paper[1] appearing about a year ago.

The present report concerns itself with the treatment of sixteen cases of sciatica, seven of which were purely neuralgic, as far as could be established by my diagnosis by exclusion; three were complicated by well-defined organic disease; in one there was advanced arteriosclerosis; in two the hysterical element obscured true pain values; one patient is now suspected of having an incipient spondylitis deformans, and another has developed an arthritic right hip joint.

Through the kindness of my colleague, Dr. Peter Bassoe, I treated by injection two of the patients in his wards at the Cook County Hospital.

The number of patients treated is not so very large, but varied, and serves to show that the vague designation of sciatica blankets a multitude of conditions which, if approached with caution, will reveal undoubted disease sometimes far removed from the site of sciatic nerve. Since I have been interested in this particular therapeutic phase I have seen more than twice the number of cases herein recorded in which the leg pains presumptive of sciatic neuralgia were frank expressions of something else. The four patients presenting underlying organic disease were accepted for treatment as such, and with premeditation subjected as test cases for the determination of palliative effect. If we would but conduct a better clinical examination in reference to the character and topography of sciatic pain and seek to determine an assignable cause in pelvic disease, tumors, varicosities, coprostasis, spinal cord lesions, joint affections, diabetes, syphilis, malaria, anemia, diatheses and dyscrasias, we might then reenforce symptomatic with proper causal treatment, and thus arrive at a more intelligent and rational therapeusis.

Prefatory to the histories related in greater detail, I may say that of 7 patients, 3 were completely free from pain after one injection and remained so; 1 received two treatments; 2 others received three, and the remaining 1 had five. Of the three complicated cases mentioned, the first patient, with metastatic pelvic invasion (primary carcinoma of the breast), was entirely unrelieved after two injections; the second, with bilateral neuritic pain associated with diabetes, remained free for six weeks after two injections, but then relapsed and preferred to await such improvement as would follow appropriate diabetic treatment. The third, who had severe chronic parametritis, submitted to but one injection, with only slight relief, and thereafter sought gynecologic advice and treatment. The two patients who received a single injection each with alcohol, getting but partial transitory relief, did not receive second injections, owing to reports in the literature of disaster by this method. Of the patients manifesting hysterical symptoms, one was completely relieved after a single injection, and the other experienced such an alarming increase of pain that I was deterred from a second trial. The patients in both the spondylitic and arthritis hip cases were entirely uninfluenced, one after three and the other after two treatments.

With some regard for clearness, I shall present the treatment in its entirety under the separate headings of, 1, solutions; 2, methods; 3, syringe, needle and technic; 4, accidents, dangers and complications; 5, general results; 6, case reports (tabulated); 7, conclusions.

THE SOLUTIONS

The intraneural and perineural injection for the relief of neuralgic pain is a method neither of to-day nor of yesterday, but dates back to 1853, the time of Wood, in Edinburgh. Luton advocated the use of concentrated salt solution under the skin for tender nerve spots in 1863, and in the thirty years to follow many anesthetic and mordant solutions, including silver nitrate, ether, chloroform, carbolic acid, antipyrin, osmic acid, cocain and alcohol were indifferently used to combat and "kill" pain. Interest in hypodermic medication of every sort was revived by Schleich's work in 1895 ("Schmerzlose Operationen"), in which he included a formula for use in sciatica, viz.: 25 c.c. of a 1 per cent. cocain solution (cocain mur., 0,1; morph. mur., 0,02; sodium chlorid, 0,2; Aq. dist. ad. 1-000).

The particular references to injections for neuralgia, however, were not properly valued until Lange popularized them more than a year later.

A. SALT SOLUTIONS

The credit for the conception of the deep perineural infiltrating injection, under pressure, of a large quantity of salt solution intended to allay pain by its mechanical action, belongs to Lange of Leipsic. The literature on the subject shows that there has been some choice expressed in the formulas of salt solutions intended for injection in massive doses. Some of the French observers, Sicard, for instance, thinks that the isotonic solutions containing sodium sulphate, sodium chlorid, sodium phosphate, to which small doses of stovain have been added, are the best. Lange thinks that isotonicity makes no difference.

I have tested a variety of formulas in different cases, and feel that three may be endorsed as useful and harmless: 1, normal salt solution at body temperature injected in the amount of 80 to 120 c.c.; 2, normal salt solution refrigerated to zero centigrade, as suggested by Schlesinger,[2] and injected in the amount of 10 to 20 c.c.; 3, the beta-eucain salt solution at body temperature (Lange), injected in an amount of 60 to 100 c.c. These are effective beyond any and all measures with which I am as yet familiar.

B. ALCOHOL

A dependable palliative treatment in most refractory types of trigeminal neuralgia, the deep alcohol injections have been advocated for sciatica by Schloesser, who reported thirty-six cases with thirty-six cures. This, indeed, enviable achievement led to its immediate and thorough trial by Erb of Heidelberg, Brissaud and Levy and Baudoin of Paris, with negative and in not a few instances disastrous results.

1. The Methods and Technic of the Deep Alcohol Injections for Trifacial Neuralgia, THE JOURNAL A. M. A., Nov. 9, 1907 xlix, 1574.

2. Deutsch. med. Wchnschr., 1908, No. 6.

Reflecting on my own very gratifying experience with alcohol in trifacial disease, I subscribed to its use in two cases of sciatica, giving a single injection in each instance with relief, when I was dissuaded from subsequent trials by the reports of grave motor disability and amyotrophic change in the affected extremity, following its use in the hands of Erb,[3] Brissaud,[4] and Dèjerine.[5]

The Schloesser method contemplates the deep intraneural injection of about 1 to 2 c.c. of alcohol in ascending strengths of 70 to 80 per cent., penetrating to the required depth of the nerve, midway between the tuberosity of the ischium and great trochanter on a line with the gluteal fold, or reaching it (if indicated) in its more superficial course lower down in the leg under the head of the fibula.

Serious objections may, I think, be justifiably entered against the use of alcohol in sciatica. As Levy and Baudoin[6] remark: "The sciatic is a mixed (sensorimotor) nerve and in the true sense terminal, which may not be said of the trigeminus, that has a purely sensory trunk, is rich with anastomoses to the facial and its own terminals, and thus capable of some regeneration in the presence of trauma or other disintegrating influences." For purposes of alcohol injections, then, the conditions of sciatica and tic douloureux are not comparable.

Finkelenburg, who subjected large nerve trunks in animals to a variety of solutions found alcohol markedly destructive to the medullary sheath and nerve fibers—not so cocain or salt solution. Levy and Baudoin injected the sciatic of a dog. Paralysis resulted and after the treatment had been persisted in for one month the animal was sacrificed. The nerve at point of injection was very much hypertrophied and for 3 or 4 cm. surrounded by a rich vascular network. Microscopically, the medullary sheath was almost completely destroyed and replaced by a small patch of granulomatous tissue. Above the point of injections the nerve fibers appeared almost normal.

In a second experiment the middle portion of the sciatic of two guinea-pigs was exposed, and with a very fine needle a few drops of alcohol with chloroform were injected. Immediate paralysis followed, with anesthesia, and in a few days marked atrophy and pressure sores developed. The animals were sacrificed at the end of two months. Macroscopically, at site of the injection the nerve appears bulbous. Marchi stain showed the medullary sheath diseased, with a small abscess at whose level nerve filaments were spread on the posterior wall and equally degenerated. The relaxed muscles to the nerve supply show loss of volume and nuclear proliferation. Brissaud, Dèjerine and Pitres[7] have shown that the local action of alcohol on nerve tissue causes destruction of axis cylinders and myelin sheath.

Brissaud reports having given an injection of alcohol to a woman of 26 who had sciatica of gonococcic origin. The pain disappeared, but there developed a sensorimotor paralysis of the entire region innervated by the sciatic, involving chiefly the extensors of the leg. Eighteen months thereafter the sensory condition was again normal, but marked paresis continued, together with undoubted reaction of degeneration. In a second case, that of a woman aged 34, 1 c.c. of alcohol was injected. There was suppression of pain at the cost of marked motor paresis, which ten months after intervention was present together with the reaction of degeneration.

In his comment of these results so at variance with those of Schloesser, Brissaud states:

3. Fischler: Münch. med. Wchnschr., Aug. 6, 1907.
4. Rev. neurol., 1907, p. 633.
5. Rev. neurol., 1907, p. 525.
6. Rev. neurol., 1907, No. xv, p. 777.
7. Rev. neurol., July 30, 1906, xiv.

If Schloesser has not had similar results it is because he has not carried his alcohol to the nerve filaments. The myelin sheath and axis cylinders have escaped the destructive local action of the alcohol. His injections have been perineural and not intraneural.

Fischler,[8] in a report from the Erb clinic of 12 cases of sciatic neuralgia and neuritis treated with alcohol, reports 8 successes (4 complete and 4 partial), and 4 failures. In 3 of Erb's own cases and 1 of Fischler's motor paralysis with reaction of degeneration occurred, serving to show that alcohol induces a toxic degenerative neuritis. Three patients recovered after one year, and one gives evidence, after one and a half years, of the paralysis. Fischler concludes that whereas alcohol is a desirable remedy for palliation of the severe neuralgias of the sensory nerves, its injection where mixed or pure motor nerves are concerned must be recommended with great reserve and as a last resort, as it were.

For these good and sufficient reasons the use of alcohol in deep infiltrating injections for sciatica is, in my opinion, contraindicated.

METHODS

The aim is to inject the sciatic nerve at one (if that suffice) or more points in its course after it leaves the great sacrosciatic foramen. One is quite certain of getting into the nerve by introducing the needle in a slightly oblique and upward direction from a point on a level with the gluteal fold, midway between the tuberosity of the ischium and the great trochanter of the femur. In the average individual the nerve at this point lies about 6 to 7 cm. deep. In unusually stout or very muscular people I have observed it to be 10 cm. deep from the skin surface, as indicated by the disappearance of the full length of the needle. In very thin individuals or delicate women I have reached it at scant 5 cm. Another desirable point for injection for pain lower down is at a point behind and just below the head of the fibula, where the superficial peroneal branch can readily be felt with the finger. In the earlier cases in which injections were given these were the landmarks advocated and endorsed, since on the whole, they had proved satisfactory. The one suggested for the middle of the thigh is not, however, entirely free from objection. The needle, for instance, does not take an unvarying and fixed course, nor is the depth of the penetration always sufficiently exact. The soft parts are too yielding in some instances, and the contractions of the gluteal muscle masses a hindrance to the free passage of the needle in others. It has been customary in this location to pierce the gluteus maximus, but Tandler[9] thinks that this can be improved on, and he accordingly penetrates at the lower border of the gluteus maximus and then passes the needle upward under that muscle. More desirable even than this muscle index is, in my opinion, a bone landmark, for it favors above all things precision, just as it does in reaching the main division of the fifth nerve. The selection of a higher point for puncture, at the notch, fulfills these conditions. A method of ensuring accuracy in this location is suggested by Brissaud, Sicard and Tanon. They place a patient in the lateral position, with the thigh and leg semiflexed, and determine three points, the great trochanter, the tuberosity of the ischium and the sacrococcygeal articulation. A line is drawn from the trochanter to the sacrococ-

8. München. med. Wchnschr., Aug. 6, 1907.
9. Wien. klin. Wchnschr., 1907, No. 49.

cygeal joint and on it, at a point one or two finger-breadths above the tuberosity of the ischium, they insert the needle. The bony pelvis shows this to be a good landmark, but the ischial tuberosity is not always felt with ease.

Therefore, still another method is offered which makes use of the spine of the ischium, referred to by the French in their clinical writings as *l'épine sciatique*. A thumb's breadth to the outer side of this determined point, resting on bony surface, lies the broad sciatic nerve.[10]

METHOD OF LOCATING SCIATIC NERVE

A line is drawn from the sacrococcygeal joint to the postero-external border of the great trochanter; at the junction of the inner one-third and outer two-thirds of this line is found the spine of the ischium. Placing the needle a thumb's breadth to its outer side and penetrating in a directly perpendicular line to a variable depth one engages the sciatic nerve.

That I might be assured of the constancy of the relations to this landmark, I injected the nerves of many fresh unhardened cadavers placed at my disposal in the anatomic laboratories of Northwestern University Medical School. The regional dissections to the nerve, made by my associates in the work, Messrs. Weber and Bundesen, directly after my having injected a few drops of aqueous solution of eosin into the nerve, showed the stain to have come in contact with the nerve sheath in every instance. The depth to which the needle passes before striking on the bony surface of the ischium is very variable in different individuals. In some I found it to be 4 to 5 cm., in others 8 to 10 cm. In all but the four earlier cases this landmark was adopted for locating the nerve. In my opinion, it is always to be preferred and constitutes a distinct addition to the technic.

THE SYRINGE, NEEDLE AND TECHNIC

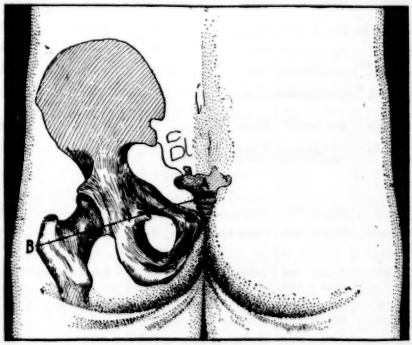
The syringe I use is all metal and large enough to hold 60 c.c.; one made all of glass might be preferred, but I found it fragile and especially perishable in the larger sizes requisite for massive doses of solution. The metal body, plunger and tip may be separately boiled. These metal syringes are ordinarily equipped with a so-called catheter or ear-tip; but for this particular injection I have suggested a slip-tip which allows the needle to fit the barrel directly. This obviates the annoyance of adjusting an intervening piece of rubber tubing to the needle and secures against leakage. The needle is of the pattern used in trifacial injections. It is of steel, 12 cm. in length, with a caliber of 1.5 mm., and provided with a half-sharp point, which is protected and made less cutting by the presence in the lumen of a dull-tipped stylet. A needle too dull causes difficulty in getting through the skin and unnecessary pain, while one too sharp may completely transfix the nerve and by such trauma incur an unpleasant complication. For the convenience of estimating the accurate depth of the nerve I have suggested graduating the needle in centimeters, from one to ten.

The patient should lie on the abdomen, with the legs fully extended, and a flat pillow or pad placed in the hollow of the groins. A comfortable position is essential to overcome contractions of the gluteal muscle masses. I have not been able to note any advantage in placing the patient in a lateral position, with the hips and knees semiflexed. The entire buttock on the affected side should be cleansed and rendered aseptic, as for any operative procedure. The landmarks are then established and the maneuver of locating the point of puncture completed as each operator may elect. I punctuate the several points with tincture of iodin.

A general anesthetic has never been found necessary. In nervous patients or those unduly susceptible to pain it may be desirable to raise an anesthetic bleb with Schleich solution before penetrating the skin.

The needle, with the stylet slightly withdrawn from its tip, is put through the skin, and when well in the subcutaneous tissue the stylet is returned to cover the point and the needle carried to the necessary depth. The direction is perpendicular. Aimless jabbing around, either in soft tissue or on the bony surface, is superfluous and harmful.

The moment the nerve is touched the patient feels a distinctive sharp lancinating pain at the heel or low down in the back of the leg, attended, as a rule, with a quick jerking movement of the limb. This heel pain was present in many of my cases and is referred to by Lange as a "control pain" (*Kontrolschmerz*), a test pain, indicative of accurate placement of the needle. When it is not elicited, some patients have complained



Illustrating landmarks for reaching sciatic nerve at notch. The linear measurement in drawing is necessarily curvo-linear on the body. (a) Sacro-coccygeal joint. (b) Trochanteric border. (s) Spine of ischium. (n) Sciatic nerve a thumb's breadth to outer side of spine. Anatomic accuracy has been somewhat sacrificed to illustrate landmark. The symphysis and coccyx should not touch when the pelvic bones are tilted at their proper angle.

of diffuse pain in the buttock; others have felt it in the thigh, and some at the knee. On removal of the stylet a few drops of venous blood occasionally ooze through the needle, but that is all. The filled syringe is now attached, and under steady, firm pressure, and without pauses, the solution is slowly injected, the amount being gauged by the cubic centimeter index on the piston-rod. The needle is finally quickly withdrawn and the point of puncture sealed with a cotton collodion patch. If much local tenderness prevails immediately after the injection I instruct patients not to lie on the affected side for several hours. Soreness persisting for several days is best relieved by moist warm compresses of extract of hammamelis.

In advancing a new method of treatment there are always inquiries as to accidents, dangers, complications and therapeutic results in general, and these, so far as I know them, can be briefly stated.

10. Levy and Baudoin: Rev. neurol., 1907, xiv, 777.

ACCIDENTS, DANGERS AND COMPLICATIONS

Accidents I have not encountered. Neither the needle nor salt solution when used in varying quantities or at different temperatures gave rise to untoward, unpleasant effects. Von Noorden[11] records an instance of a needle breaking off in the deep tissue from a powerful muscular contraction of the gluteus, but this is an isolated occurrence. I can not appreciate by what circumstance harm could be done, aside from transfixing the nerve and so badly traumatizing it as to cause sensory and motor paralysis. My colleague, Dr. Bassoe, in a personal communication, says that he thinks this is what may have happened to one of the patients recently injected during his service at the Cook County Hospital. Missing the nerve and its resistant bony floor, by a puncture made too high up, the needle could pass through the foramen and inundate the pelvis with salt solution, but this is not likely, nor would it be harmful. Dangers from hemorrhage in this location are absolutely *nil*. Of complications, I have in three cases noted, six hours after injection, a slight rise in body temperature, lasting from twenty-four to forty-eight hours; in no case was it preceded by a chill, but one patient complained of chilliness. From the reported cases of others and my own I believe such reaction as is evidenced by slight elevation of temperature occurs when the larger (massive) doses are injected — those exceeding 60 to 80 c.c. A slight transitory rise is a resorptive type of temperature and need not be considered as indicating that asepsis has not been observed in the course of operation.

Attention has been called to the liability of an idiosyncratic individual to development of toxic symptoms following administration of betacaucain, no matter how small the dose, but I am not familiar with any pronounced ill effects from this source. If nausea, vertigo and gastrointestinal distress were at all marked I should feel much disposed to regard the cucain ingredient with suspicion. Other minor subjective complaints have been noted, but in my opinion they are unworthy of mention.

GENERAL THERAPEUTIC RESULTS

In the more favorable cases (three) the relief from pain was astonishingly prompt, even before the injection was completed, and there has been no recurrence. In others, again, the feeling of tension under the increasing fluid content greatly intensified the pain during injection and perhaps for an hour or more thereafter. Some patients whose pain radiated down the heel experienced relief to the knee only, while tender points in the calf and a sensitive nerve trunk below the knee persisted. In these cases, after injecting at the notch, I at the same sitting injected 10 to 20 c.c. into the peritoneal nerve at the head of the fibula with good effect. It was gratifying to see two bedridden hospital patients walk back to the wards with comfort directly after the first treatment. In several ambulatory cases of moderate severity the injections were given in my office, and the patients experienced neither difficulty nor discomfort in going home.

SCIATICA (TABULATION OF SIXTEEN CASES)

Patient.	Date.	Place of Operation.	Sex.	Age.	Type.	Duration.	Solution.	Number of Injections.	Results.	Remarks.
J. D.....	Mar., 1907..	St. Elizabeth's Hospital.	M.	70?	Chronic	3 yrs....	Alcohol, 80 per cent., 2 c.c.	1	Improved; recurrence in 3 weeks.	Arteriosclerosis. Dissuaded from further trialby unfavorable reports concerning alcohol.
Jennie C..	Mar. 14,1907.	House..	F.	31	Subacute, 2d attack.	4½ mos.	Alcohol, 80 per cent., 1 c.c.	1	Improved; recurrence in 6 weeks.	No further injection; alcohol contraindicated.
Augusta B.	Apr. 8, 1907.	House.	F.	42	Subacute.....	5 mos...	Beta-eucain, 40 c.c. and 80 c.c.	2	Not improved....	Pelvic metastatic carcinoma.
Karl A.....	Apr. 26, 1907.	Office.	M.	36	Acute.....	3 wks...	Beta-eucain, 90 c.c.	1	Cured.	
Fritz L....	June 25,1909.	House..	M.	44	Chronic.....	1 yr....	Beta-eucain, 60 c.c.;20, 120.	3	Cured.	
Sophia K..	Sept. 6,1907.	House.	F.	58	Chronic, (acute exacerbation).	2 yrs....	Beta-eucain, 90 c.c.—120.	2	Improved	Diabetes.
Arnold S..	Nov. 10,1907.	House..	M.	48	Subacute.....	6 mos...	Normal salt solution, 90—90—120.	3	Impr'v'd; recurrence in 3 wks.	Spondylitis deformans?
Aaron M...	Nov. 12 and Jan. 4,1908.	Michael Reese Hospital.	M.	38	Subacute.....	3 mos...	Normal salt solution. 90 c.c. Peroneal, 10 c.c.; normal salt, 120.	3	Cured	Complained of considerable weight and dragging pain in the right groin anteriorily for about 5 days after injection.
Sadie R. ..	Jan. 12, 1908.	House..	F.	22	Acute.....	2 wks...	Beta-eucain, 60 c.c.	1	Cured	Patient very hysterical.
George W..	Mar. 3, 1908.	Office and house.	M.	39	Subacute....	4½ mos.	Normal salt solution, 60-100 c.c.	2	Not cured.....	Arthritis of hip? Slight temperature for 3 days; 99.5° to 101°.
Abe R	Apr. 14, 1908. June 9, 1908.	Michael Reese Hospital.	M.	52	Subacute....	3 mos...	Nor. salt refrigerated to zero, 20-20-40-60-30 c.c.	5 during 2 visits at hospital.	Cured.	
Jake G....	Apr. 24, 1908.	House.	M.	26	Acute.....	8 days..	Nor. salt. Beta-eucain, 120.	1	Cured	Temperature for 48 hours: 100° to 100.6°.
Ada M.....	June 1, 1908.	House..	F.	31	Acute.....	3 wks...	Beta-eucain, 60 c.c.	1	Not cured.....	Nausea, vomiting; too hysterical for future injection.
Sadie L...	June 28,1908.	House.	F.	28	Acute.....	1 yr....	Nor. salt refrigerated, 30 c.c.	1	Not cured.....	Chronic parametritis.
Chas. G....	July 8, 1908.	House.	M.	36	Subacute.....	2 mos...	Nor. salt refrigerated, 60 c.c.	1	Cured.	
Aaron S...	Sept. 12.....	House.	M.	29	Acute.....	6 days..	Beta-eucain, 90 c.c., 120 c.c.	2	Cured.	
Dr. Bassoe's 2 patients	July 20.....	Cook County Hospital.	M.	?	Subacute.....	?	Nor. salt sol., refrigerated, 60 c.c.	1 ?	Cured (Dr. Bassoe's verbal report).	
			F.	?	Subacute.....	?	Beta-eucain.....	1 ?	.....	Do not know result.

11. Wien. klin. Wchnschr., 1907, No. 49.

In the severer cases in which several injections were required the patients were kept in bed for forty-eight hours; then forced flexion, sitting and standing were practiced to note improvement. The interval for injections following the first one was variable, and I think no advice need be ventured on this point, except to state that it is safe to give the injections from twenty-four to seventy-two hours apart, and in equally close succession for as many injections after that as may be necessary. The largest number in a given case was five. Individual conditions should, I think, prevail in the matter of reinjections. Tenderness may persist at the point of puncture for several days.

In the earlier cases objective sensory changes in the distribution of the nerve were examined for, but none were noted that could be relied on, because of the predominating "subjective" pain.

The prognosis, if the reports of Lange, Bum, Umber, Alexander, Kellersman, Grossman, Schlesinger, and several others are to be credited, is exceedingly good.

Lange states that of his 56 cases 13 were acute, and among this number treated there was 1 complete failure and 1 recurrence after six months. In the 11 subacute cases, 1 patient remained uncured, 2 were improved, and there was 1 recurrence in four weeks. There were 32 chronic cases, with 4 patients uncured, 4 improved and 4 recurrent. The total of 56 cases showed 15 per cent. of complete failures, 10 per cent, recurrences, 10 per cent. improvements — which is intended to mean that his method accomplishes cures in approximately 65 per cent. of all the cases.

Bum[12] has treated 81 patients who had sciatica with injections of 100 c.c. of an 8 per cent. sodium chlorid solution, and records 63 per cent. complete cures and 21 per cent. improvements.

Schlesinger[13] treated 42 patients, with a total of 51 injections, with excellent results. The percentage of cures, improvements, recurrences and failures in my own cases corresponds very closely to that of other observers who had access to more abundant material. I have had occasion to inject refrigerated normal salt solution in a case of herpes zoster for the severe root pain which long outlasted the eruptive skin lesion, and have used it in a case of intercostal neuralgia. In both instances, which I shall report more fully at another time, the control of pain was marked and lasting.

COMMENTS

1. The deep infiltrating perineural injections palliate the pain of sciatica.

2. The acute, subacute and chronic types of sciatica lend themselves to this treatment, and whereas the number of injections required varies, immediate notable relief is afforded by the first injection in nearly all cases.

3. The treatment is most indicated and effective in the non-symptomatic cases, but is also of value in the symptomatic variety.

4. Normal salt solution of varying temperature and quantity, or the beta-eucain solution of Lange, is to be preferred to other anesthetic or mordant solutions. Alcohol is harmful and contraindicated.

5. The sciatic nerve may be reached deep in the ischio-trochanteric hollow (its peroneal branch lower down at the capitellum fibulæ), but it is more surely and safely reached directly after its emergence from the notch.

6. The point for puncture and penetration to the nerve is best determined by drawing a line between the postero-external border of the great trochanter and the sacro-coccygeal joint; at the junction of the inner third and outer two-thirds of this line is the spine of the ischium. A thumb's breadth to the outer side of this spine lies the sciatic nerve. Cadaver experiment and clinical experience lead me to endorse this landmark above all others.

7. The method requires a syringe (preferably metal) with a capacity for 30 to 60 c.c. or more, a needle of desirable length (8 to 12 cm.) directly attachable to the syringe.

8. Accidents of any consequence almost never occur. Unpleasant effects and complications are few and insignificant.

9. The prognosis in the sense of a cure is good if the facts suffice—namely, that in the large number of cases observed for from one to four years many patients have been entirely free from pain during that long an interval. Improvement is common. Recurrences are not the rule, and failures are the exception.

103 State Street.

12. Wien. klin. Wchnschr., 1907, No. 49.
13. Deutsch. med. Wchnschr., 1908, No. 6.

THE DURATION OF THE ACTIVELY INFECTIOUS STAGE OF TUBERCULOSIS *

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The object of this study has been primarily to render a rich field of tuberculous material of practical value from both the clinical and laboratory viewpoints. Scant benefit accrues to humanity at large from scientific knowledge that can not be applied to its betterment or protection. We have endeavored through scrutiny of the secretions and excretions of tuberculous subjects to arrive at definite conclusions: 1, with regard to the possibility of transmitting the disease during its earliest stages; 2, as to what means, and through what media, infection of human beings by other individuals may and does occur; and, 3, as to how far and how thoroughly under the ordinary circumstances of daily life Nature provides for the destruction of infectious tuberculous material, subsequent to its excretion from the human body.

It has been, and as the result of this investigation still more certainly is, our conviction that tuberculous infection may and does not infrequently occur through the semen; whether or not by means of the spermatozoön as the host and carrier of the tubercle bacillus remains to be determined. Such a mode of infection does not, of course, require the immediate appearance of a symptom-complex of tuberculosis, as we know it clinically. That the disease may be implanted prior to birth needs as witness only the occasional congenital caseous pneumonia, included in the experience of every pathologist of ordinary wide opportunity. Veterinarians and plain farmers add a homely proof also in the not infrequent dropping of a tuberculous calf by a tuberculous cow, evidence to the same effect from the

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lower animal kingdom. John R. Williams[1] cites a case of almost certain placental transmission. Harbitz[2] has recently reported five cases of congenitally tuberculous twins, and has demonstrated the presence of latent bacilli. Kraemer[3] relates a number of instances in which the father is tuberculous, and all the children die of the disease, the mother remaining perfectly well. Every physician knows of at least one such occurrence. It is, in fact, our unhesitating belief that many if not most cases of so-called predisposition, or postnatal infection, with tuberculous parentage, are illustrations of latent tuberculosis—the result of intrauterine infection. Such transmission, whether maternal or paternal, reveals its secrets in response to only one line of investigation, and this offers difficulties and leads to conclusions that are not by any means clear-cut nor final.

There have come to us during the past four months eight opportunities for autopsy on men dying in the Philadelphia General Hospital from tuberculosis in advanced stages. From each of these subjects the testicles and two inches or more of each vas deferens were removed as soon as possible after death. The duct was carefully dissected from the surrounding tissues, and by sterile scissors cut across about one inch from its junction with the testicle. By gentle pressure from the testicle outward along the duct were expressed from one to two small drops of clear semen, which was at once applied to clean glass slides, spread, and stained for tubercle bacilli, decolorized and differentiated with Pappenheim's solution of rosolic acid in alcohol. The fresh specimen was first examined for live spermatozoa, but in no instance were they found in motion. In all fifteen specimens of semen were examined (from eight subjects).

CASE 1.—General tuberculosis. The testicles and epididymis appeared normal. The semen from the right testicle and duct showed no bacilli. The semen from the left side was also negative.

CASE 2.—Tuberculosis of lungs; cavity formation. The testicles and ducts appeared normal. The semen from both sides failed to show bacilli.

CASE 3.—Empyema. Caseous pneumonia of left lung. Right lung less involved. Sputum full of bacilli. The semen from the right testicle and tube yielded one typical tubercle bacillus. The semen from the left side showed no bacilli. The testicles and duct appeared normal.

CASE 4.—Chronic ulcerative pulmonary tuberculosis. Tuberculous enteritis, ulcerated mucous membrane of appendix. One testicle only was present. The semen from the normal-appearing testicle and duct yielded three typical tubercle bacilli.

CASE 5.—Chronic ulcerative tuberculosis of the lungs. The semen from the normal-appearing right testicle and duct showed a few typical tubercle bacilli. No bacilli were found in the semen from the left side.

CASE 6.—Caseous pneumonia. Tuberculous enteritis and cystitis. The testicles and ducts appeared normal. The semen from the right side showed one tubercle bacillus. There was none in the semen from the left side. The testicles appeared normal, also the ducts.

CASE 7.—Chronic ulcerative tuberculosis of both lungs. Caseous pneumonia of left lung. The testicles and ducts appeared normal. No tubercle bacilli were found in the semen from either side.

CASE 8.—Case from insane wards. The *Amœba coli* was present in the stools. There was a tuberculous cavity in the right lung and pneumothorax; tuberculous ulceration of intestines and feces full of tubercle bacilli. One tubercle bacillus was found in the semen from each side. There was no macroscopic involvement of testicles or tubes.

Thus in a series of eight cases tubercle bacilli were found by simple staining methods in five instances, and in the semen from five out of fifteen testicles. The fact that the bacilli were usually found, if at all, in the semen from only one side, would rather give force to the belief that there was local tuberculosis of the corresponding organ or duct, though not macroscopically evident. This fact would not, however, affect the question of the infectiousness of the semen, and the danger to the woman, and the fetus. The fact that the semen was directly from the testicle points to the blood as its vehicle from the point of inoculation.

Inoculation and impregnation of laboratory animals with testicular semen from tuberculous subjects had been projected, is now being carried out, and will be reported on subsequently. The semen from the seminal vesicles has been used for inoculation of the lower animals by a number of investigators, and has frequently produced tuberculous infection. Karlinski[4] at times found the semen from the seminal vesicles swarming with tubercle bacilli. In other cases he has found it impossible to demonstrate one bacillus, until inoculation experiments enabled their demonstration in the test animals. He has also injected bacilli into the testicle of a healthy goat, then has brought about coitus with the female, and studied the tuberculous progeny (five out of nine) from a healthy mother. He has noted the dropping of a tuberculous calf by a healthy cow, impregnated by an infected bull; and proved his results by autopsy.

We know of no one other than ourselves who has used the semen obtained directly from the testicle and the first portion of the vas deferens, and shall therefore complete this study when the opportunity presents. The discovery of the tubercle bacillus in testicular semen not only establishes the possibility, but the likelihood of frequent transmission of the disease by the male to the fetus. It also aids in establishing the more important fact that congenital tuberculosis is likely to be apparent at birth proportionately to the susceptibility of the maternal element and the developing fetus to the influence of the bacillus and its toxin. Provided they are resistant and fully or overnourished until term, there may be no indication of the latent infection.

There is no need to dwell on the possibility of infection by means of sputum. Practical interest seems to us to center rather in the demonstration of the bacilli in other excreta of the body, to which human beings are constantly and ignorantly exposed for new or reinfection. Important also are the time of earliest infectiousness of these excreta, and their tenaciousness of virulence under favorable and adverse circumstances within and without the body.

EARLY APPEARANCE OF TUBERCLE BACILLI IN SECRETIONS AND EXCRETIONS

It is a matter of common knowledge among medical men that tubercle bacilli may be determined by staining methods in the sputum from a bronchial tuberculosis long before the chest yields definite and localizing signs. It is equally well known that the intestine may swarm with tubercle bacilli from a rectal ulcer before the presence of the ulcer has been suspected.

A case in point has been studied recently by us in a man who was admitted to the wards of the Philadelphia

1. Probable Placental Transmission, THE JOURNAL A. M. A., April 6, 1907, xlviii, 1184.
2. Untersuchungen über Tuberkulose, Christiania, 1905.
3. Beitr. z. Klin. d. Tuberk., 1908, ix, No. 2.
4. Ztschr. f. Thiermed., 1905.

General Hospital supposedly suffering from uremic intoxication. He was comatose and his breathing stertorous; there was no cough, no considerable sputum, no symptom attracting attention to the lungs, and no diarrhea. A tiny speck of sputum was once expectorated and was found full of tubercle bacilli. The feces were then studied and showed scattered tubercle bacilli. When later the urine could be obtained the bacilli were also demonstrated in the sediment. There had been no suspicion of tuberculosis prior to the examination of the stray mite of sputum and the feces. The patient was infectious to others without doubt for days, perhaps for weeks and months, prior to the detection (accidental or routine, as one will) of the causal germs.

Although not by any means a new finding, the fact has not been generally recognized by the practitioner that in the feces and urine of most, if not all, tuberculous patients is contained infectious material and that in these excreta the bacilli may be demonstrated with great frequency and regularity by tinctorial methods, and often by animal inoculations when the former fail. The full knowledge of the value of this procedure led us to a tinctorial study of the sputum, urine and feces, in a large series of cases known to be tuberculous; and also to a series of inoculations of animals with tuberculous material, especially such as no longer showed the bacillus by tinctorial methods.

Our first step was the exhaustive examination of specimens of sputum, urine, and feces, from 100 patients known by the examination of the sputum to be actively tuberculous. In all instances the smears were made on new and thoroughly clean glass slides, long immersed in alcohol, ether and nitric acid, then washed with soap and distilled water, and dried over the flame. Urinary sediments were usually centrifugated and washed three times with distilled water prior to fixing on the slide. When only a small quantity of urine was obtainable (1 to 2 c.c.) the washing was dispensed with and the entire quantity of urine was placed in the center of a slide and allowed to dry in as small a space as possible, being stirred in the beginning with a tiny portion of egg albumin. The sediments were all obtained from eight ounces of the evening urine, allowed to settle over night, and from this precipitation was pipetted off into distilled water a small tube full of deposit.

We mention in passing the great difficulty experienced by us and by all students of urinary sediments in fixing the latter on a glass slide. After many failures we found that two methods would invariably succeed: 1, the coating of the smear, after fixing in the flame, with a thin solution of ether celloidin; and, 2, the use of a minute quantity of egg albumin on the slide before applying the urinary sediment. The single objection to the ether celloidin rests in its thickness, and consequent overdeep staining with the counter-dye. Even with the albumin fixation one precaution is necessary, namely, that the smallest possible quantity of albumin should be used in order to avoid the difficulty in decolorizing the albumin, and the albumin-fixed specimen by Pappenheim's fluid. Once these precautions are observed, no further sediments should be lost.

The smears from the feces were in some instances prepared by dissolving a little of the stool in a test-tube of distilled water, and smearing this semipaste in a thin, even layer on a slide. Occasionally it was sufficient to rub a small portion of the interior of the stool into a drop of sterile distilled water already on the slide. There seemed to be little advantage in one method as compared with the other, though the latter affords economy of time and glassware, and was finally adopted as the method of choice. The slower method was held in reserve as slightly more thorough, to use in the event that no bacilli were found by the first procedure.

In all cases the smears were stained with cold carbolfuchsin in covered jars, for at least fifteen minutes, and then decolorized and counter-stained in Pappenheim's solution of rosolic acid and alcohol about twenty minutes. A number of specimens were allowed to remain in the rosolic acid and alcohol for twelve to eighteen hours, without decolorization of the tubercle bacilli.

The following record will show the startling frequency of the presence of the tubercle bacillus in the urine and feces of admittedly tuberculous subjects in advanced stages of the disease:

Of 100 patients, male and female, from the tuberculosis infirmary of the Philadelphia General Hospital, the sputum of all chosen for experiment showed considerable numbers of tubercle bacilli. The entire 100 also showed tubercle bacilli in the feces, a few in considerable numbers; many more showed but few in scattered microscopic fields; several in such scarcity as to admit of discovery only after painstaking search. Thirty-eight of the 100 also showed the bacilli in the urinary sediments, never in considerable numbers, but, on the contrary, usually discovered after tedious study of the specimen. All negative specimens were examined for at least one hour before being considered free from tubercle bacilli. Several specimens, at first considered negative, were searched repeatedly and after several hours yielded one or two bacilli.

There seemed to be no direct relation between the number of tubercle bacilli in the sputum, the feces and the urine of a given patient. Occasionally the sputum appeared richly infested, and only the last field examined would disclose a lone organism in the fecal or urinary preparation. As far as possible in this series we avoided patients with renal or intestinal tuberculosis, and the patients that came to inspection at autopsy usually bore out our judgment in their freedom from active involvement of these organs. One patient in the insane ward, already referred to, had been studied for a considerable time as an instance of ameba infection. The stools showed tubercle bacilli in such numbers as to suggest tuberculous sputum rather than feces. This patient died suddenly of tuberculous pneumothorax, no lesion having been suspected in the lungs, cough and sputum being absent. At the autopsy the lower bowel was found to be riddled with ulcers of a nondescript type, from the floor, of which, however, we obtained many tubercle bacilli.

We had also the opportunity of examining the excretions from a number of patients with supposed tuberculosis (pulmonary) who had found their way into the tuberculosis wards, and yet had never yielded tubercle bacilli in the sputum. In not one of these cases in which the examination of the feces and urine indicated an absence of tuberculosis, did the autopsy prove the case one of active tuberculous infection.

One of us (Rosenberger) has during the past few years examined the feces in 1,104 cases of all kinds (including 71 instances of known tuberculous infection) with a percentage of 26.6 of positive finding of the tubercle bacillus. Excluding the 71 instances of recognized tuberculosis, there remain specimens examined from 1,033, of which number 21.5 per cent. were positive. These examinations were mostly of specimens

from patients with maladies resembling tuberculosis, such as typhoid states, or even malaria. A number were from apparently healthy individuals. To make sure that the tubercle bacillus alone was being dealt with, old and young cultures (six days' and six weeks' growths) of the butter bacillus, of the bacillus of Rabinovitch, of Grassberger, of the grass bacilli of Korn and of Moeller, the horse-dung bacillus, mist bacillus, the margarin bacillus, the bacillus of nasal secretion, and the smegma bacillus, were mixed with feces. Spreads were then made in the ordinary manner (after the organisms had been left in the feces for from one to twelve days) and it was found that all these organisms would decolorize completely in twenty minutes. Control preparations made of sputum or feces kept in Pappenheim's solution, showed the tubercle bacillus still retaining the red stain of the carbol-fuchsin after 116 days' exposure to the rosolic acid alcohol. Sections of tissue containing the bacillus lepræ, stained with carbol-fuchsin and then placed in Pappenheim's solution, showed the bacillus still retaining the stain up to the fourteenth day. Another organism that apparently was as acid-fast as the tubercle bacillus was that of Johnes' disease in cattle. This resisted Pappenheim's solution for sixty days. The spread was then removed from the fluid by some one's error, and further study was interrupted.

The foregoing studies have led us to the following conclusions:

1. In all cases of active tuberculosis, not only in cases in which they can be demonstrated in the sputum or urine, tubercle bacilli are present in the feces.

2. The urine of all actively tuberculous subjects probably contains tubercle bacilli, even though in small numbers. The average scarcity in a given specimen renders the study of the urine impracticable as a routine procedure. In many specimens they are stumbled on only when the examiner is about to give up the search, and it becomes necessary to class the specimen among the positive by virtue of the last field examined. Certainly it would seem that former publications reporting higher percentages of urines as positively containing tubercle bacilli, have included smegma bacilli among their findings. These can be differentiated, either by careful catheterization or by the use of rosolic acid and alcohol in decolorizing, or, if necessary, by obtaining the urine directly from the bladder at autopsy, as in the animals examined in our Experiments 4 and 5, reported in this study.

Thus Flick and Walsh[5] report a series of 60 patients examined, the urine of 44 of whom showed supposed tubercle bacilli, by tinctorial methods, and yet out of five animals inoculated with the urinary sediment not one developed tuberculosis. In the presence of actual and living tubercle bacilli the tuberculous urinary sediment should prove infectious for susceptible animals, as shown by Bloch,[6] who used, in many instances, urinary sediments in which the bacilli could not be demonstrated by tinctorial methods, and yet therewith successfully inoculated guinea-pigs with tubercle. His method was to crush the tiny inguinal glands between his fingers, and to inject the urinary sediment in the neighborhood of the trauma, in the likelihood that this area would be infected.

3. The question still remains *sub judice* whether scattered tubercle bacilli may not be found exceptionally in the feces and urine of normal subjects. It would seem rational to believe that the feces would contain occasional tubercle bacilli, carried into the mouth with the food or air, and thence into the digestive tract, without infecting the patient. Our investigation of apparently healthy subjects has in no instance led to the discovery of the tubercle bacillus. We have knowledge, however, of at least two cases in which we have found bacilli in the feces, and in which at autopsy (made by others) no macroscopic lesions of tuberculosis could be detected throughout the body. This does not mean, of course, that the patient may not have had an actual infection by tubercle bacilli at the time of examination of the feces, and the discovery of the bacilli. Nor does it even imply that microscopic lesions may not have been abundant, no histologic study of the organs having been made. The recent experiments of Ravenel and Reichel,[7] as well as those of many other laboratory workers, have shown how little lesion the bacilli may cause in an intestinal wall on passage through the latter to cause a bacteriemia, and it may well be that the instances that seemed at first glance to be accidental bacilli were, instead, the only evident expressions of a latent tuberculosis.

We have also studied the spinal fluid, the fluid from thoracic effusions, and ascitic fluid from a number of patients suspected of being tuberculous. In many instances we have demonstrated the tubercle bacilli, in others not. In one man for whom we had despaired of relief from an over-refilling ascites, accompanying a dilated heart, incision was made and to our surprise numbers of tubercle bacilli were found in the fluid. The patient practically recovered after the incision, and the fluid failed to return. In the remarkable case, to which we have already referred, of the patient supposedly dying of uremia, with no known or recognized pulmonary lesion, and no cough, clinical recovery ensued, but the patient continued to evacuate bacilli in feces and urine up to the time he was lost to view.

The following cases are of decided interest in this connection:

CASE 9.—*Patient.*—C. S., Philadelphia General Hospital. Bacilli could not be demonstrated in the sputum or urine, and yet were easily shown in the feces. On physical examination this patient showed a small area of doubtful consolidation at the extreme right apex.

CASE 10.—*Patient.*—A. W., a negro, with signs suggestive of meningitis, showed a few tubercle bacilli in his spinal fluid and very many in the feces. There were no signs of pulmonary or intestinal involvement and there was no diarrhea, and no increase of sputum.

CASE 11.—*Patient.*—J. K. presented a slight and probably early involvement of the right pulmonary apex. No tubercle bacilli could be found in the sputum, but they were present in large numbers in the feces.

CASE 12.—*Patient.*—S. C., an Italian, with an indefinite febrile condition, no signs of meningitis other than a slight stiffness of the nucha. The spinal fluid yielded tubercle bacilli, also the feces. There was no indication of intestinal implication.

CASE 13.—*Patient.*—J. M. had apparently a pulmonary congestion, slight fever, both bases flat on percussion, no cough, no sputum, no diarrhea. The abdominal muscles were rigid, and tubercle bacilli were found in the feces. This man recovered and was discharged from the hospital, still passing tubercle bacilli from the intestinal canal.

We have also in the past year had the opportunity of studying four cases of acute miliary tuberculosis of

5. Tr. Path. Soc., Philadelphia, April, 1903.
6. Berl. klin. Wchnschr., xliv, No. 17.
7. Jour. Med. Research, March, 1908.

other portions of the body than the intestines, in which tubercle bacilli were demonstrated in the feces. Autopsy showed an intestinal tract free from ulceration in each case.

One patient with cervical adenitis, on the way within the last month to the operating table, presented tubercle bacilli in the feces, and no other suggestion of tuberculosis throughout the body.

The foregoing cases emphasize at least three points of interest to the practitioner and to the pathologist:

1. Instances are not infrequent in which tuberculosis of parts other than the pulmonary and digestive tracts may be demonstrated by examination of the feces.

2. Tubercle bacilli may be sometimes shown in spinal fluid, or ascitic or pleural fluid, in cases of early and localized tuberculosis other than that of the pulmonary system, and in these cases the bacilli may be and usually are excreted in the urine and feces.

3. Incipient pulmonary tuberculosis may show considerable numbers of tubercle bacilli in the intestinal excretions, even in the absence of cough and obtainable sputum.

Of the infectiousness of incipient pulmonary tuberculosis there can be no doubt, even in instances in which neither cough nor sputum is apparent, provided such patients excrete tubercle bacilli in urine and stool. A number of cases have come to our attention that still further emphasize the need of supervision and care of the incipient disease. Two such may be mentioned in bare outline:

CASE 14.—Miss B. was reported in a former series of cases of incipient tuberculosis. She had then a slight involvement of the right apex. The nature of the onset and the physical signs left little room for doubt as to the nature of the process. There was slight cough, no sputum.

CASE 15.—The sister of Patient 14 slept with her during her convalescence, and developed a similar though more extensive involvement. Both of these patients recovered and are perfectly well.

CASE 16.—Simultaneously with the recognition of the second case the cook in the house, who cared for Patient 15 during these months as maid, and with whom Patient 15 had constant dealing as housekeeper, developed an active apical lesion. No other source of infection than Patient 14 could be discovered for the latter two patients. The feces of all three contained tubercle bacilli. There were many opportunities of infecting the hands in disposing of the urine and stools of Patient 14.

CASE 17.—Miss L. was a young girl presenting an early and very slight involvement of the right apex posteriorly, in conjunction with an appendicitis, which operation and pathologic study proved to be tuberculous. Tubercle bacilli could not be found in the sputum. The sister of the patient, who had not been well, was her bedfellow, and soon developed an active tuberculosis of the left lung and pleura, which is not yet under control. There was no apparent opportunity common to both for the infection. Moreover, the cases seemed strikingly successive and similar in course and type. The feces of both contained tubercle bacilli.

If these are true instances of infection of healthy persons by infectious material transmitted from supposedly non-infectious cases of tuberculosis, whether through inappreciable particles of pulmonary or bronchial material or through contamination of hands or food by moist or dry fecal or urinary soiling or dust, then it would appear that care must be exercised in a new and more active fashion in throwing safeguards around those who live with a patient who has even incipient tuberculosis. Seen in this light, at no date in the history of a case of infection is a rigid oversight begun too early from the standpoint of the welfare of others. Such a conclusion, apparently well grounded, requires only the fact already stated of the presence and discovery of tubercle bacilli in the semen, and the consequent likelihood of frequent latency of tuberculosis, to render the possibility of infection of a healthy mother or family by a newly-born tuberculous infant not only a possibility but a matter of concern. Especially will this be true in a case in which the father is known to be tuberculous and the mother appears to be free.

We have had neither the opportunity nor the time as yet to study the milk from nursing tuberculous mothers. The frequency of infection of milk from tuberculous cattle leaves little occasion for hope that a different state of affairs obtains in the human secretion.

The knowledge that pregnancy and the ordeal of child-bearing tends to light up a sluggish or dormant tuberculous condition in the mother would also lead us to believe that the tuberculous mother is above all other times then likely to secrete and excrete tuberculous waste products.

INFECTIOUSNESS OF OLD SECRETA AND EXCRETA

We have been interested to note in passing the duration of virulence of the tubercle bacillus in sputum, urine and feces under natural conditions favorable to and unfavorable to their life. We have met with results that vary to the last degree. On June 1, 1908, six specimens each of urine, sputum and feces, all containing virulent tubercle bacilli, were set aside in vessels covered with large-meshed gauze and exposed for about twelve hours daily to sunlight and air. On July 1 and August 1 the bacilli in the sputum could be demonstrated without difficulty and proved specifically toxic for guinea-pigs. They took the stains readily in the urinary sediments also and in the dried fecal mass rubbed up with distilled water and smeared as usual. The specimens were then saved for further study. A few days later the bacilli could no longer be shown in two of the specimens of sputum. With material from one of these sputa a guinea-pig was inoculated (Experiment 3) hypodermically, and within a few days tubercle bacilli were demonstrated in its feces, not having been present there up to that time.

In contradistinction to this finding one of us (Rosenberger) has preserved virulent tubercle bacilli in tap water, exposed to sunlight and diffuse daylight for a full year, then has produced tuberculosis in a guinea-pig by inoculation and recovered the bacilli from the animal. There seems to be no rule possible for the calculation of the viability of the germ under a given environment. There seems to be some doubt, moreover, whether in process of time tubercle bacilli must necessarily die out in any or all excreta, the time being indeterminate and impossible of regulation except by immediately destructive methods. Certainly we must conclude that the organism may persist in a non-stainable form in any or all known media and retain its virulence for use on a favorable occasion.

It may still be that from the tubercle bacillus we shall learn the secret of perennial youth. In a recent paper Dixon[8] has discussed the action of direct light and eosin on the tubercle bacillus. He seems a little more optimistic in regard to the bactericidal influence of drying and of the sun's rays than appears to us warranted

8. Dixon, Samuel G.: May Not Drinking Water, When Polluted with Sewage, Be One Medium of Dissemination of the Tubercle Bacillus? THE JOURNAL A. M. A., Aug. 1, 1908, li, 380.

in the light of our experiments. There is no doubt that certain infected sputa are rendered innocuous by Nature's and by simple artificial means. It is our knowledge, and we believe that it will be of service to the practitioner if he is brought to understand that under favorable conditions, or even when exposed to air and strong sunlight, the bacillus may attain a virulent old age. The most dangerous feature of its persistence, as shown by our Experiment 3, is its occasional survival in a form that requires tedious culture and refuses demonstration by tinctorial methods.

There opens up an endless series of queries as to the actual presence or absence of bacilli in excreta on which a negative laboratory report is made and in which neither cultural nor inoculation tests are made to determine the doubt. This masked battery will decimate more than one generation and defy defeat and silencing unless some more certain method be discovered of promptly demonstrating the silent forms of the tubercle bacillus. The almost unlimited life of the bacillus in butter, and its frequent occurrence therein, has been dwelt on with force by Schroeder and Cotton.[9] They have shown that after four and one-half months the bacilli were as virulent as at the start, the fatty nature of the butter probably protecting them from destructive influences. This may also lend a hint as to the length of life of bacilli even in dried secreta and excreta, in certain of which enough of fatty matter is perhaps maintained to allow of their existence, while in a few or even many the fat content is low and the bacilli easily destroyed.

ORIGIN OF THE BACILLI IN URINE AND FECES

There need be no discussion of instances in which local tuberculous lesions are present in either the urinary (kidney to urethral meatus) or digestive tracts. With regard to the appearance of bacilli in the urine of patients with tuberculosis of the glands of the neck, or of the lungs, or of the peritoneum even, there need be little hesitation in turning to the acknowledged bacteriemia for the explanation. With regard to the presence of bacilli in the feces in similar cases the answer must not be so precipitate.

In the first place they may be swallowed with food or water, or with sputa in instances of tuberculosis of the bronchi or lungs. On the other hand, our animal experiments do not lead us to believe that many bacilli introduced by the mouth become demonstrable in the feces until several days after their introduction into the stomach with the food. Experiments in which the bacilli have been introduced by us in the form of native sputum have led us to doubt whether they are carried into the intestines in a form that will accept the stain when swallowed by the patient as his own sputum. Certainly such a possibility must be considered. Of all the explanations, however, it now appears to us the least satisfactory.

Longcope[10] and others have shown the frequency of tuberculosis of the thoracic duct and the involvement of its lymph with tubercle bacilli in cases of general tuberculosis. Here we find at least one explanation both of the presence of the bacilli in the intestine and of the scattering abroad from the digestive tract. The final means of transmission, however, whether one medium be the lymph and another the tissues themselves, must be the blood, if all the requirements and demands of the known facts are to be met. Once grant, as we must, that bacilli administered in soup to animals reach the heart blood in four to five hours, as Besanti and Panisset have shown in a number of experiments, we need no further explanation of the transportation of tubercle bacilli from local lesions far distant to the manufactory of the fecal mass.

9. Circ. 127, Bureau of Animal Industry, U. S. Dept. Agric.
10. Bull. 3, Ayer Clin. Lab., 1906.

EARLY APPEARANCE OF TUBERCLE BACILLI FOLLOWING INOCULATION OF GUINEA-PIGS

It has also been our aim through the inoculation of guinea-pigs by various methods, and by careful scrutiny of their physical signs, their secretions and excretions, both prior to and subsequent to inoculations, to determine the earliest probable period of infectiousness in a given case of tuberculosis.

In order to arrive at as practical results as possible we not only fed to one guinea-pig tuberculous sputum spread on cabbage leaves, but into others injected tuberculous sputum in distilled water either hypodermatically or intraperitoneally.

EXPERIMENT 1.—On Aug. 8, 1908, a large male guinea-pig, weighing 420 gms., was fed on 8 c.c. of tuberculous sputum from a patient in the tuberculosis infirmary. The urine and feces were examined on the day prior to the inoculation, and on each day thereafter. On the day prior to the feeding a few micrococci and fungi were found in the stools and urine. On the third day after the feeding for the first time a few scattered tubercle were found in the feces, together with many tiny diplococci. The urine also contained many diplococci on the third day and thereafter, but no tubercle bacilli were discovered in the urine until the seventh day. They were constantly present in the feces from the time of the first appearance, and were occasionally found in the urine up to the time the search was discontinued. An autopsy was performed on this pig on Sept. 16, 1908. The lungs showed several small foci of caseous deposit. No other macroscopic change was evident.

EXPERIMENT 2.—On Aug. 18, 1908, a large brown and white male guinea-pig weighing 530 gm. was inoculated hypodermatically about an inch from the tail with tuberculous sputum from a woman in the infirmary. The feces and urine were examined daily before and after the inoculation. Tubercle bacilli appeared first on the fifth day in the feces, and on the eighth day in the urinary sediment. The search was then discontinued. Autopsy showed widespread tuberculous involvement of the lungs. The intestines showed no ulceration.

EXPERIMENT 3.—On Aug. 18, 1908, a large male guinea-pig, weighing 490 gm., was inoculated with a solution in 1 c.c. of distilled water of a dried tuberculous sputum which had been exposed to air and sunlight for over two months, and in which the tubercle bacilli were no longer tinctorially demonstrable. The feces and urine showed no bacilli on the day of inoculation or thereafter until the sixth day, when they were detected in small numbers in the feces. They were at no time found in the urine. Autopsy showed tuberculous involvement of the lungs. The intestines showed no ulceration.

EXPERIMENT 4.—On Sept. 1, 1908, a large male guinea-pig was inoculated intraperitoneally with 2 c.c. of tuberculous sputum and distilled water ää. It died of septicemia on the third day. The urine and feces were examined on the day of inoculation and no tubercle bacilli were found prior to operation. The peritoneal cavity at autopsy showed a large quantity of pus and lymph. There were also scattered miliary pus foci in the lungs. The peritoneum was thickened and everywhere covered with purulent exudate. A smear from the peritoneal pus showed a very few cocci and myriads of eosinophiles. The bladder was full of urine containing pus (2 c.c.). This was fixed and dried with egg albumin on a slide and stained. A single colony of eight tubercle bacilli was found in the preparation. They were also present in the feces obtained directly from the cecum.

EXPERIMENT 5.—On Sept. 1, 1908, a large male guinea-pig was inoculated with the same sputum and similarly to the

last one. It died on the fourth day, from septicemia. The urine examined before inoculation showed no tubercle bacilli. The feces also gave no bacilli. The autopsy gave the same findings as in the preceding animal, except that the suppurative process was not so far advanced. The lungs were congested, but showed no purulent metastases. A smear from the peritoneal pus gave myriads of small diplococci and no tubercle bacilli. The bladder contained urine, which showed in the dried and stained specimen a few scattered tubercle bacilli. The feces also contained scattered single tubercle bacilli.

CONCLUSIONS

1. Intrauterine tuberculous infection of the ovum through the semen is probably a frequent event.

2. Tubercle bacilli are present in the feces and in the urine of many, and probably all cases of active local and systemic tuberculosis of the human being.

3. Tubercle bacilli appear in the feces and urine of tuberculous subjects within the first few days following an acute infection, and in certain instances long prior to the appearance of physical signs.

4. The only likely means of rendering tuberculous excreta (sputum, feces, urine) innocuous is the direct and effectual application of heat. They can not be expected certainly to overgrow or die out or surely to succumb to sunlight or drying.

5. Excreta from which formerly demonstrable tubercle have apparently disappeared may still prove destructive to animal life, and the bacilli again be recovered from the test animals in a demonstrable form, both by culture and by tinctorial methods of examination of the excreta.

6. The routine examination of the stools for tubercle bacilli should be more invariable even than that of the sputum. It more often yields a positive result. In occasional instances the microscopic field is as thickly spread with the bacilli as any sputum. Often the search must be painstaking and extended until a few scattered bacilli have been detected.

7. The examination of the urinary sediment for tubercle bacilli is not adapted to the use of the general practitioner. It should be resorted to whenever necessary to a thorough confirmation of suspected and doubtful or local (genitourinary) infection. The inoculation of guinea-pigs with the urinary sediment is a surer though slower method of demonstrating the bacillus, provided the test animal escape early death from mixed infection.

8. Probably all infections will open up to similar methods of study their causal organism when once we have determined upon specific stains and differential methods. There appears to us to be little doubt that every bacterial infection is a bacteriemia, and it seems not improbable that in every bacteriemia the causal organism is excreted through the urine and the feces.

SIGNIFICANCE OF THE FOREGOING

The import of this and of similar studies by other investigators is at once vital in its bearing on society at large. The physician is confronted with the certainty that he has no more than begun the crusade against tuberculosis. He has perhaps even overestimated the possibility of its complete ultimate control. Without the slightest desire of uttering a pessimistic word, and with the knowledge that in the clearest understanding of the truth lies the best hope of ultimate accomplishment—on the basis of this study we feel dubious as to the extinction of the disease by human means. No more likely is it that the discharges from the typhoid or cholera or dysenteric patient will always or even usually (except in hospitals) be effectually destroyed, and thus prevented from polluting the air we breath and the drinking supply, than that tuberculosis shall more than be inhibited in its spread. Granting as we now must that the infection is scattered broadcast for days and weeks, and perhaps months, before signs and symptoms demand a study of the case, it will be seen at a glance into what a labyrinth wanders the quest for its extermination and control.

Urine, sputum and feces are virulent, whether wet or dry, and for an indefinite time, the very indefiniteness of which renders them positively antagonistic to the health of the community until the bacillus or some equally positive destructive force places the sufferer under the sod.

The studies of Lord[11] have shown us that one fly-speck may contain as many as 5,000 tubercle bacilli; further, that thirty infected flies deposit in three days from 6,000,000 to 10,000,000 tubercle bacilli. We are, therefore, starting some centuries late in the destruction of flies.

Friedmann has injected tubercle bacilli into the vagina of a guinea-pig just after coitus, and later demonstrated the bacillus in the embryo. We, therefore, not only have on our hands the destruction of insects, but the prevention of marriage among the tuberculous. And yet, in spite of this knowledge that urine and feces and sputum and semen all carry, under favorable conditions, the certainty of a spread of the disease—in future rather because than in spite of this—there will be disinfected many an otherwise ignored or neglected source of contagion.

In so far as we arrive a step nearer a comprehensive realization of the armament, the subtlety, and the ubiquity of the tubercle bacillus; in just the proportion that our effort at control is relentless and systematic; in just that measure will we render a dayspring of true health conceivable, and lighten with hope this toilsome burden of man.

ANEMIAS OF INFANCY*

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The blood of infants under 2 years differs normally in certain of its characteristics from that of adults. The hemoglobin, relatively high for a time after birth, rapidly falls to a minimum of 55 or 60 per cent. in the first three weeks, then gradually rises to 70 per cent. at about six months, where it remains during the rest of infancy. There are, moreover, normally great variations in different individuals and in the same individual at different times. The number of red corpuscles is somewhat larger than in adults, averaging between 5,500,000 and 6,000,000 per c.mm. During the first few weeks of life there is more or less variation in the size and shape of the red cells, and nucleated forms are not very unusual during the first few days.

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11. Pub. Mass. Gen. Hosp., 1906, i.

* Read in the Section on Diseases of Children of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908. Owing to lack of space, the article is here abbreviated by omission of the portion relating to leukemia. The complete article appeared in the Transactions of the Section and in the author's reprints.

The number of white corpuscles per c.mm. is somewhat larger than in adults, averaging from 10,000 to 14,000. The relative proportions of the various forms of leucocytes are also considerably different. The average figures are roughly as follows: Small mononuclear, 40 to 50 per cent.; large mononuclear, 10 per cent.; polynuclear neutrophiles, 35 to 45 per cent.; eosinophiles, 1 to 5 per cent. That is, the proportion of mononuclear forms is considerably greater, and that of the polynuclear neutrophiles considerably smaller than in adult life. The mononuclear cells, moreover, are not merely lymphocytes, but vary much, not only in the size of the cell as a whole, but also in the size of the nucleus and in the amount of protoplasm. Myelocytes are occasionally found under normal conditions in the first few weeks of life, but never later (Zelenski and Cybulski[1]). The neutrophilic blood picture after the first few weeks is much like that of the adult, except that there are rather more corpuscles at the extreme right. Esser thinks that the blood picture shifts to the left when infants are artificially fed, but Zelenski does not agree with him.

Blood changes develop more easily and more frequently as the result of various morbid conditions and disease in infants than in adults. All the changes seen in the blood of adults as the result of disease are aggravated in infancy. The tendency is always to revert to a younger or to the fetal type of blood. All forms of blood disorders in infancy are apt to be associated with splenic enlargement. As the result of this tendency to aggravation of changes and to reversion to a younger type of blood, the red corpuscles show much greater variety in size and shape and many more nucleated forms are seen than under similar pathologic conditions in the adult. If, as seems probable, the red color of the marrow in infancy indicates that the whole marrow of the long bones is already occupied in the manufacture of red corpuscles, there can be no reserve power of formation at this age, as there is in the adult. This may explain why children bear hemorrhage so badly and why it is that they become anemic on such slight provocation.

Leucocytosis also develops more rapidly and to a greater degree, both in normal and abnormal conditions, than in later life. The physiologic leucocytosis of digestion, for example, is decidedly greater in infancy than later. The type of leucocytosis, moreover, is not as constant as in adults, in whom the increase of white cells is largely in the polynuclear neutrophiles. In infancy the increase is sometimes in the lymphocytes, sometimes in the large mononuclear forms, sometimes in the polynuclear neutrophiles, and sometimes, even, in the eosinophiles. Leucocytosis is more apt to occur in blood conditions associated with splenic enlargement than in those without it. Myelocytes occur in less severe conditions and in greater numbers than in adults (Zelenski and Cybulski[1]). An increase in the number of eosinophilic cells, even if considerable, is not uncommon and seems to be of little significance.

The present theory as to the development of the leucocytes explains quite satisfactorily the peculiar type of leucocytosis in infancy. It is now believed that both the granular and the non-granular cells are derived from one common parent cell from which the red corpuscles are also derived. This parent cell is almost identical in character with the large lymphocyte, and is the first to appear in the fetal blood.

During the process of development a gradual differentiation of function takes place in the blood-forming organs, as the result of which the lymphoid cells of the marrow produce only granular cells and those of the adenoid tissue only non-granular cells, or lymphocytes. This specialization, however, is never so complete but that when there is a demand for a greater number of cells of any type the lymphoid cells of any of the blood-forming organs are able to produce this type. Although it is probable that in the infant, as in the adult, the granular cells are derived exclusively from the marrow and the non-granular cells almost, if not absolutely, exclusively from adenoid tissue, yet the nearer the organism stands to the fetus the more easily can a return to fetal conditions take place, and the lymphoid cells of the marrow assume vicariously the function of producing lymphocytes and those of the adenoid tissue that of producing granular cells. There is, moreover, considerable pathologic evidence to show that such a vicarious function does actually take place in some of the blood disorders of infancy.

The relative and absolute excess of the non-granular cells which is characteristic of the blood in infancy indicates an unusual degree of activity of the adenoid tissue at this time of life. This activity of the adenoid tissue is of great importance pathologically because it is a well-known fact that the more active a tissue is the more likely is it to become diseased. Moreover, it is a fact that in the blood disorders of infancy affections of the adenoid tissue dominate the picture, while those of the marrow are extremely rare.

The percentage of hemoglobin is almost always relatively low in the blood disorders of infancy. This is presumably due to the facts that the infant nomally receives an insufficient supply of iron in its food, and that the reserve of iron present in the liver at birth is not large enough to keep the percentage of hemoglobin at the adult standard. This reserve of iron may, moreover, be insufficient and in any event is comparatively easily exhausted.

In all the blood disorders of infancy, therefore, the most characteristic features are the relatively low percentage of hemoglobin, the relatively large number of non-granular cells and the marked morphologic changes in the red corpuscles. The blood picture may change very rapidly in children, corresponding to several types in a few weeks, and thus rendering the diagnosis extremely difficult.

It is customary to divide the diseases of the blood in adults into primary and secondary anemia and leukemia, including chlorosis and pernicious anemia among the primary anemias. The classification of the diseases of the blood in infancy is, however, not so simple, several of the types met in later life being entirely or apparently entirely lacking and other types not seen in later life being very common.

CONGENITAL ANEMIA

It is probable that Hutchison is right in recognizing a congenital anemia. In some of these cases it seems as if the reserve of iron at birth is insufficient. In others it is possible, but not proved, that there is a congenital defect in the bone marrow. In still other instances, it has followed a marked icterus neonatorum, this, perhaps, being a sign of excessive blood destruction at birth.

1. Jahrb. f. Kinderh., 1904, lx, 884.

CHLOROSIS

Much has been written recently, especially by the French, with regard to chlorosis in infancy. Some authors speak of it as chlorosis and apparently consider it the same disease as the chlorosis of young girls. Others doubt that it is chlorosis and prefer the term oligosideremia (Rist and Guillemot[2]), while still others speak of it as the chlorotic type of anemia in infancy. There can be no doubt that cases showing the type of blood seen in the chlorosis of young women are found not infrequently in infancy. There can be no doubt, too, that the clinical picture in these cases is somewhat different from that seen in the average secondary anemia at this age. The babies have a yellowish pallor; they are fat instead of thin; they are apathetic instead of irritable; the symptoms of disturbed digestion are comparatively slight; cardiovascular murmurs are common. There is also no question but that they improve very rapidly when iron is given. The following case is an example of this type of anemia:

CASE 1.—*History.*—No. 2,592 was seen when 23 months old. Her mother had died of cancer which she had during the pregnancy. The baby had always been fed on modified milk. She had had a number of digestive upsets when about a year old. She often seemed nauseated, but did not vomit. The bowels had always been regular. She had never had any other illnesses.

Examination.—She was well developed and nourished and moderately pale. There was a venous hum in the neck and a faint systolic murmur at the base of the heart. There was a slight rosary but no other signs of rickets. The liver was palpable 1 cm. below the costal border. The spleen was not palpable. There was no enlargement of the peripheral lymph nodes. The lungs were normal. The urine was normal.

Blood: The blood showed hemoglobin, 50 per cent.; red corpuscles, 5,122,000; white corpuscles, 11,300; mononuclear, 31 per cent.; polynuclear neutrophiles, 65 per cent.; eosinophiles, 1 per cent.; mast cells, 3 per cent. The red corpuscles showed some variation in size and shape and moderate achromia. There were no nucleated forms.

She took her food well, did not vomit and had normal movements. She was listless and quiet and her temperature was subnormal. She improved very rapidly when iron was given.

There seems to be no justification for considering these cases to be chlorosis. They occur indifferently in boys and girls and have no pathologic connection with the nervous or genital systems. They are in most cases digestive in origin, but are apparently more likely to develop in infants whose reserve supply of iron was, as the result of premature or twin birth, deficient at birth or has been exhausted from some cause, such as hemorrhage, or in those who have been kept too long on a diet deficient in iron, such as milk.

The resemblance of the blood picture to that of chlorosis is easily explained by the facts that the percentage of hemoglobin is normally relatively low in infancy and that the number of red corpuscles is larger at this age than later. A diminution in both, therefore, gives a combination like that found in chlorosis in later life. This leads to confusion unless these facts are taken into consideration. Moreover, owing to the comparatively small reserve of iron, almost all anemias in infancy have a relatively low percentage of hemoglobin.

It is also not uncommon to see the chlorotic type of blood develop in the course of anemias in infancy and disappear later; in fact, this type of blood is almost always present to a greater or less degree at some time or other in the course of every anemia in infancy. This is especially true in the early convalescent stage of secondary anemia. The ready response to iron in these cases is no proof of their essential nature, as all but the severest forms of anemia in infancy are very favorably influenced by iron and many of them do not respond materially to treatment until iron is given.

It is safe to conclude, then, that while anemia of the chlorotic type is common in infancy, the disease chlorosis probably does not occur at this age.

PERNICIOUS ANEMIA

There is great difference of opinion as to whether or not pernicious anemia occurs in infancy; all agree, however, that if it does occur it is extremely unusual. Hutchison[3] could find but one case, that of Rotch and Ladd, which he considered genuine. The subsequent course of this case, however, shows that it was certainly not one of pernicious anemia. Simon[4] accepts but four cases as genuine.

The diagnosis of pernicious anemia at this age is extremely difficult, if not impossible, because at this period any secondary anemia may, for the reasons already detailed, take on the characteristics which are considered pathognomonic of this disease in later life. The presence of marked variation in the size, shape and staining characteristics of the red corpuscles, of nucleated forms, whether large or small, of myelocytes, even if in considerable numbers, and of a relative lymphocytosis are, therefore, of little assistance in diagnosis at this age. Not even an increased globular value is pathognomonic. A fatal termination is also of little value in diagnosis because many of the severe secondary anemias are also fatal. The fact that the blood plates are diminished in pernicious anemia and increased in secondary anemia in adults, is of some importance in diagnosis at this age. So far as I know, there are no data as to this point in relation to the anemias of infancy. It is safe to assume, however, that if pernicious anemia does occur in infancy the characteristics of the blood are the same as in later life, and that the metaplastic type is by far the more common. Petrone has reported the only case of the aplastic type of which I am aware. This was in a baby of ten months in whose blood there were no nucleated red corpuscles or megalocytes, although the hemoglobin was only 12 per cent. and the red corpuscles numbered 1,400,000.

The conclusion seems justified, therefore, that pernicious anemia rarely, if ever, occurs in infancy, and that if it does the blood shows the same peculiarities as in later life and that it is almost universally of the metaplastic type.

SECONDARY ANEMIA

The characteristics of the blood and blood-forming organs in infancy, which have already been mentioned, make the infant especially liable to become anemic from the action of all sorts of debilitating and injurious conditions. These conditions may act either on the blood-forming organs or on the blood itself, rendering the former less capable of forming blood or increasing the destruction of the latter. However produced, secondary anemia in infancy is apt to assume a severity rarely seen

2. Bull. de la Société Méd. des Hopitaux, 1906, Nov. 9; Abst. in Arch. de Méd. des Enfants, 1907, x, 312.

3. Lancet, London, 1904, i, 1,253.

4. Rev. mensuelle des mal. de l'enfance, 1907, xxv, 145.

in adult life and in the most pronounced forms may present a picture which in the adult would justify the diagnosis of pernicious anemia.

The hemoglobin always suffers first, and in the mildest cases the blood shows merely the characteristics of a mild type of chlorosis. This is not surprising when the normally low percentage of hemoglobin is remembered. When the injurious influences are more powerful there is an increased destruction of red corpuscles and an impairment of the reproductive power of the bone marrow with a consequent diminution in the number of red corpuscles as well as in the hemoglobin. Abnormalities in the size, shape and staining qualities of the red corpuscles develop and nucleated red corpuscles appear. It is the pronounced tendency toward the development of these abnormalities which especially distinguishes the secondary anemias of infancy from those of adults. The explanation of this tendency is presumably to be found in the fact that the bone marrow in infancy is, under normal conditions, working close up to its limit, and thus, being unable to increase its productive power by hyperplasia, meets the demand for new cells by a more rapid division of its constituents instead of by an extension of the area of production. Such rapid production necessarily leads to imperfect formation of the corpuscles which are thus sent into the blood in an only partially completed condition.

In all but the mildest forms, leucocytosis is likely to develop in addition. The type of the leucocytosis varies according to the cause of the anemia, the increase depending on the chemotactic influence of the special causative condition and bearing no direct relation to the changes in the red corpuscles. It is most often of the polynuclear type, but may be of the lymphocytic, especially when the anemia is due to diseases of the gastroenteric tract. It may, however, be eosinophilic when the anemia is due to helminthiasis or of the large mononuclear type when it is due to malaria.

(I have quoted Hutchison freely in the past paragraph, as well as in other parts of this paper, and wish to acknowledge my indebtedness.)

ILLUSTRATIVE CASES

CASE 2.—*History.*—No. 2,520, aged 3 months. Proprietary foods. Appetite good. No vomiting. Slight constipation.

Physical Examination.—Fairly developed and nourished. Fair color. Anterior fontanelle depressed. Slight rosary. Faint systolic murmur at base. Lungs normal. Edge of liver 1 cm. below costal border. Spleen not palpable. Slight puffiness of hands and eyelids. Slight general enlargement of peripheral lymph nodes.

Urine: Pale, acid, 1006, no albumin.

Blood: Hemoglobin, 65 per cent.; red corpuscles, 4,064,000; white corpuscles, 16,800; small mononuclear, 55 per cent.; large mononuclear, 25 per cent.; polynuclear neutrophiles, 20 per cent. No morphologic changes in red corpuscles.

CASE 3.—*History.*—No. 1,982, aged 18 months. Nothing known as to first nine months. Last nine months fed on milk and water. Digestion had been good.

Physical Examination.—Small and poorly nourished. Moderate pallor. Top and back of head flattened. Frontal eminences enlarged. Three teeth. Slight rosary. Chest flattened. Heart and lungs normal. Edge of liver 3 cm. below costal border. Spleen not palpable. Abdomen and extremities normal. No enlargement of peripheral lymph nodes.

Urine: High colored, acid, 1018, slightest possible trace of albumin.

Blood: Hemoglobin, 35 per cent.; red corpuscles, 4,336,000; white corpuscles, 21,000; small mononuclear, 19.5 per cent.; large mononuclear, 14.75 per cent.; polynuclear neutrophiles, 63.25 per cent.; eosinophiles, 1.25 per cent.; myelocytes, 0.5 per cent.; mast cells, 0.75 per cent. Slight irregularity in the size, shape and staining qualities of the red corpuscles and a very few normoblasts.

CASE 4.—*History.*—Sally L., age 12 months, infectious diarrhea at 9 months. After recovery, began to vomit occasionally and to be somewhat constipated. Vomiting increased, but was quickly relieved by careful feeding.

Physical Examination.—Fairly developed and nourished. Marked pallor. Six teeth. Slight rosary. Heart and lungs normal. Edge of liver 1 cm. below costal border. Spleen not palpable. Abdomen negative. Slight enlargement of epiphyses at wrists and ankles. Slight general enlargement of peripheral lymph nodes.

Urine: Pale, no albumin or sugar.

Blood: Hemoglobin, 55 per cent.; red corpuscles, 3,700,000; white corpuscles, 5,500. Slight variation in the size and shape of the red corpuscles but no nucleated forms.

CASE 5.—*History.*—No. 1,505, age 10 months. Premature. Fed on undiluted cows' milk. Progressive failure; vomiting; constipation.

Physical Examination.—Emaciated. Marked pallor of skin and mucous membranes. Slight rosary. Heart and lungs normal. Edge of liver 2 cm. below costal border. Spleen not palpable. Slight enlargement of epiphyses at wrists and ankles. Slight general enlargement of peripheral lymph nodes.

Urine: Normal color, acid, no albumin.

Blood: Hemoglobin, 25 per cent.; red corpuscles, 2,600,000; white corpuscles, 15,000; small mononuclear, 61 per cent.; large mononuclear, 3 per cent.; polynuclear neutrophiles, 35 per cent.; eosinophiles, 1 per cent. Marked variation in the size of the red corpuscles, but none in their shape or staining reaction. No nucleated forms.

Blood after a month of treatment with modified milk, beef juice and iron: Hemoglobin, 35 per cent.; red corpuscles, 3,600,000; white corpuscles, 14,000.

CASE 6.—*History.*—No. 2,395, age 14 months. Imperforate anus with successful operation. Breast for three months, then cow's milk, then milk and barley water. Otitis media at 10 months. Digestion disturbed the last six months. Feet swollen for a week, hands and scrotum for several days.

Physical Examination.—Small and poorly nourished. Marked pallor. Marked edema about eyelids and a little of cheeks. Four teeth. Slight rosary. Venous hum in neck. Heart and lungs normal. Abdomen distended. Liver 2 cm. below costal border. Spleen not palpable. Slight edema of scrotum. Some edema of feet and moderate edema of legs below the knees. Slight enlargement of cervical lymph nodes. No evidences of scurvy.

Urine: Pale, acid, 1020, no albumin.

Blood: Streaky. Hemoglobin, 25 per cent.; red corpuscles, 2,300,000; white corpuscles, 10,400; small mononuclear, 8 per cent.; large mononuclear, 18 per cent.; polynuclear neutrophiles, 73 per cent.; eosinophiles, 1 per cent. Marked variation in the size, shape and hemoglobin content of the red corpuscles, but no polychromatophilia or stippling. One megaloblast seen in counting 120 white corpuscles.

ANEMIA WITH SPLENIC TUMOR

In many instances anemia in infancy is associated with enlargement of the spleen. This enlargement may be of all grades, from one so slight that the spleen is barely palpable to one in which it reaches the anterior superior spine of the ilium and fills up the whole flank. Enlargement of the liver is also not uncommon. Leucocytosis may or may not be present, and if present may, as in the secondary anemia just mentioned, be of any type. All grades of morphologic changes may be found in the red corpuscles and nucleated red cells of various types may or may not be present. Much difference of opinion has arisen as to the classification of these cases and as to the relation between the splenomegaly and the anemia, some believing that the primary seat of the trouble is in the spleen, others that the

splenomegaly is secondary to the anemia, and still others that neither the splenomegaly nor the anemia is dependent on the other, but that both are the manifestations of some other diseased condition. Still others believe that the marked cases are leukemia modified by the physiologic conditions peculiar to infancy, and others place them in the indefinite class of adult splenic anemias.

Before discussing these different theories it may be well to cite a few cases to illustrate some of the various grades of severity of this condition.

CASE 7.—*History.*—Fred A., age 2 years. Always perfectly well, except for occasional very slight digestive upsets, and pneumonia four months previously. A month before had had a slight digestive upset from which he apparently quickly recovered. Temperature, however, continued to be a little elevated from time to time. Appetite good. Tongue a little coated. Digestion good except for slight constipation. Slight loss of color and circles under eyes.

Physical Examination.—A little pale. Small circles under eyes. Tongue slightly coated. Loud venous hum in neck. Heart normal except for slight systolic murmur at the base. Lungs normal. Abdomen negative. Edge of liver 1 cm. below costal border. Spleen palpable 1 cm. below costal border. Extremities normal. No enlargement of peripheral lymph nodes.

Urine: Pale, acid, 1024, no albumin or sugar.

Blood: Hemoglobin, 50 per cent.; red corpuscles, 5,088,000; white corpuscles, 10,900; mononuclear, 59.75 per cent.; polynuclear neutrophiles, 36.5 per cent.; eosinophiles, 3.25 per cent.; myelocytes, 0.5 per cent. Slight macrocytosis and poikilocytosis. Moderate achromia. No nucleated corpuscles. No malarial organisms.

CASE 8.—*History.*—No. 760, age 11½ months. Nothing known as to the history except that she had had whooping-cough three months before, that her appetite was poor, that she had vomited occasionally and had had a sore mouth.

Physical Examination.—Markedly emaciated and very pale. Systolic murmur over whole precordia. Occasional râles in both chests. Edge of liver 1 cm. below costal border. Spleen palpable 3½ cm. below costal border. Slight general enlargement of peripheral lymph nodes. Body and extremities covered with a fine purpuric eruption. Eyelids puffy. Few hemorrhagic spots in mouth.

Blood: Markedly pale and yellow. Hemoglobin, 19 per cent.; red corpuscles, 950,000; white corpuscles, 27,000; small mononuclear, 52 per cent.; large mononuclear, 13 per cent.; polynuclear neutrophiles, 32 per cent.; eosinophiles, 0.5 per cent.; myelocytes, 2.5 per cent. Marked variation in size and moderate variation in shape of red corpuscles; 22 megaloblasts, 8 microblasts, 25 normoblasts and 12 atypical nucleated red cells seen in counting 500 white cells.

CASE 9.—*History.*—No. 1,427, age 18 months. No history.

Physical Examination.—Flabby and rather pale. Fontanelle nearly closed. Parietal eminences enlarged. Twelve teeth. Slight rosary and flaring of the lower ribs. Heart and lungs normal. Upper border of liver flatness at fifth rib, lower border palpable 6 cm. below costal border. Spleen palpable 9 cm. below costal border; surface smooth, consistency firm, edge rounded, notch distinct. Epiphyses at wrists and ankles enlarged. Slight bow-legs. Slight general enlargement of peripheral lymph nodes.

Urine: Normal color, acid, 1012, no albumin.

Blood: Hemoglobin, 75 per cent.; red corpuscles, 5,650,000; white corpuscles, 11,800; small mononuclear, 32 per cent.; large mononuclear, 8 per cent.; polynuclear neutrophiles, 51 per cent.; eosinophiles, 9 per cent. A very little variation in the size of the red corpuscles, but none in their shape or staining reaction. No nucleated cells seen.

CASE 10.—*History.*—No. 1,538, age 17 months. Breast-fed for five months; then strained rolled oats. Had vomited occasionally and lost some weight. History very indefinite.

Physical Examination.—Well developed and fairly nourished. Color good. Fontanelle closed. Slight rosary. Heart and lungs normal. Lower border of liver almost touched the anterior superior spine, reached to within 2 cm. of the navel and passed under the left costal border in the left nipple line. Spleen palpable running out from beneath the costal border in the anterior axillary line, directly downward to the level of the anterior superior spine and backward into the flank; surface smooth, density increased, edge sharp, notch not palpable. Abdomen large and lax. Epiphyses considerably enlarged at wrists and ankles. Legs slightly bowed. Slight general enlargement of peripheral lymph nodes.

Urine: Pale, 1008, no albumin.

Blood: Hemoglobin, 65 per cent.; red corpuscles, 3,720,000; white corpuscles, 10,700; small mononuclear, 30 per cent.; large mononuclear, 4 per cent.; polynuclear neutrophiles, 65 per cent.; eosinophiles, 1 per cent. Little variation in the size and none in the shape of the red corpuscles. No nucleated forms seen.

CASE 11.—*History.*—Christine G., age 12 months. Breast-fed for two months; after that extremely badly fed. Much vomiting and undigested movements. Steady loss of weight. Edema began at 10 months. Never any fever.

Physical Examination.—Marked emaciation. Very marked pallor. Fontanelle depressed. Six teeth. Gums and mouth normal. Venous hum in neck. Systolic murmur at base of heart. Lungs normal. Moderate rosary. Abdomen negative. Lower border of liver 2 cm. above navel. Spleen felt running out from under costal border downward to level of navel and backward into flank; surface smooth, edge sharp, notch distinct. Extremities normal. Slight general enlargement of lymph nodes. Slight edema of hands and eyelids.

Blood: Hemoglobin, 20 per cent.; red corpuscles, 952,000; white corpuscles, 10,320; mononuclear, 60 per cent.; polynuclear neutrophiles, 37 per cent.; eosinophiles, 1 per cent.; basophiles, 2 per cent. Very marked variation in size and shape of red corpuscles, many large forms, also very marked polychromatophilia. Four normoblasts and 11 megaloblasts seen in counting 200 white cells, as well as 3 red corpuscles with stippling.

Under careful feeding and citrate of iron subcutaneously the general condition improved somewhat, although petechial spots appeared from time to time and edema of the face and extremities increased.

Blood at 13 months: Hemoglobin, 35 per cent.; red corpuscles, 1,164,000; white corpuscles, 11,800; mononuclear, 50 per cent.; polynuclear neutrophiles, 44 per cent.; eosinophiles, 2 per cent.; basophiles, 3 per cent.; myelocytes, 1 per cent. Marked variation in size and shape of red corpuscles; marked polychromatophilia, 7 normoblasts and 13 megaloblasts and 2 red corpuscles with stippling seen in counting 300 cells.

A week later she had an acute intestinal upset from which she rallied, to die, after progressive failure, at 14 months.

Autopsy (By Dr. Bassoe, Chicago).—General anemia; emaciation; catarrhal gastroenterocolitis; edema of face and lungs; slight hydroperitoneum; bilateral hydrothorax; slight hyperplasia of spleen; few retroperitoneal hemolymph glands; slight bronchopneumonia. Bacterial examination showed pneumococci in cultures from the heart's blood.

Microscopic examination of spleen, by Dr. Wolbach, Boston): The spleen showed a slight increase in the reticulum and a slight amount of pigment within the cells about the trabeculæ. The pulp also contained an excess of polynuclear leucocytes. The condition is presumably one of chronic passive congestion.

CASE 12.—*History.*—No. 2869. Age 12 months. No history of importance.

Physical Examination.—Small and poorly nourished. Moderate pallor. Serous discharge from right ear. Frontal eminences enlarged. Head flattened on top. Fontanelle depressed. Two teeth. Venous hum in neck. Marked rosary. Heart and lungs normal. Edge of liver 2 cm. below costal border. Spleen palpable running out from costal border in the left anterior axillary line downward and forward to navel, downward and backward to anterior superior spine, then backward along crest of ileum and under ribs in scapular line. Surface smooth, edge a little rounded, notch indistinct. Marked enlargement of epiphyses at wrists and a little at ankles. Inguinal and cervical lymph nodes the size of peas.

Urine: Clear, no albumin.

Blood: April 4: Hemoglobin, 40 per cent.; red corpuscles, 4,054,000; white corpuscles, 13,000; mononuclear, 91.7 per cent.; polynuclear neutrophiles, 4.2 per cent.; eosinophiles, .5 per cent.; myelocytes, 3.1 per cent.; mast cells, .5 per cent. One normoblast to 250 white cells.

April 13: Hemoglobin, 45 per cent.; red corpuscles, 3,094,000; white corpuscles, 24,000; mononuclear, 41 per cent.; polynuclear neutrophiles, 38 per cent.; myelocytes, 18 per cent.; mast cells, 3 per cent. Marked poikilocytosis. Moderate achromia. Some stippling. Three normoblasts seen in counting 200 white cells.

April 24: Hemoglobin, 50 per cent.; white corpuscles, 45,000; mononuclear, 37.5 per cent.; polynuclear neutrophiles, 40.5 per cent.; eosinophiles, 2 per cent.; myelocytes, 20 per cent. Nine megaloblasts and 12 normoblasts seen in counting 200 white cells.

May 9: Hemoglobin, 60 per cent.; red corpuscles, 3,789,000; white corpuscles, 23,000; mononuclear, 62 per cent.; polynuclear neutrophiles, 29 per cent.; eosinophiles, 3 per cent.; myelocytes, 6 per cent. Moderate macrocytosis and slight poikilocytosis. Sixteen megaloblasts and 8 normoblasts seen in counting 300 white cells; also an occasional nuclear figure.

May 27: Hemoglobin, 80 per cent.; red corpuscles, 3,440,000; mononuclear, 55 per cent.; polynuclear neutrophiles, 40 per cent.; eosinophiles, 4.5 per cent.; myelocytes, .5 per cent. Slight poikilocytosis; 6 normoblasts seen in counting 200 white cells.

June 24: Hemoglobin, 80 per cent.; red corpuscles, 5,600,000; white corpuscles, 22,000; mononuclear, 63.3 per cent.; polynuclear neutrophiles, 32.6 per cent.; eosinophiles, 2.1 per cent.; myelocytes, 2 per cent. Slight poikilocytosis. No macrocytosis; 3 megaloblasts and 8 normoblasts seen in counting 300 white cells.

During this period the child had taken its food well and rarely vomited. The movements had been fair, better toward the end. The weight had increased from 5,340 grams to 5,910 grams. The treatment had been buttermilk and citrate of iron, gr. ¾, subcutaneously, every other day. The baby then left the hospital, but reappeared at the Floating Hospital a week later. The physical examination was the same as when she was first seen.

Urine: Normal color, acid, slightest possible trace of albumin, a few leucocytes and squamous cells, an occasional red blood corpuscle, no casts.

Blood: July 2: Red corpuscles, 5,392,000; white corpuscles, 51,400; mononuclear, 41 per cent.; polynuclear neutrophiles, 59 per cent.

Died July 8.

Autopsy (by Dr. Wohlbach).—There were marked signs of rickets. The spleen was long and narrow. The estimated weight was 250 grams. The color was deep brownish-red, the consistency firm. On section the cut surfaces were smooth and deep red. The corpuscles and trabeculæ were easily visible, as in the normal spleen. A very small amount of pulp was obtained by scraping. The liver was normal in size. The capsule was smooth, the consistency normal, the color pale brownish-red. On section the lobular markings were barely visible. Bone marrow: That in the vertebræ was deficient in color and amount; that from the femur abundant, dark grayish and fairly firm in consistency. There were in addition an organized pneumonia, acute bronchitis, chronic fibrous pleuritis, lymphatic hypertrophy, atrophy of the thymus, dilatation of the stomach and subpericardial ecchymoses.

Microscopic examination of spleen: The splenic nodules were numerous, large and irregular in shape. The germinal centers were very large and showed numerous mitotic figures. The pulp showed a slight increase in the reticulum. The sinuses and reticular tissue contained many large cells with granular protoplasm resembling myelocytes. These cells had either blue or purple staining protoplasm, the stain used being methylene blue and eosin. Groups of such cells were found surrounded by nucleated corpuscles, forming foci similar to the erythroblastic centers of the bone marrow. There were also many mononuclear eosinophiles with large nuclei, cells resembling those at the germinal centers of the nodules, and plasma cells. There was moderate injection of the sinuses with blood. There were many polynuclear leucocytes in the pulp and sinuses. Many were fixed in the act of migrating from the sinuses.

Liver: The general arrangement of the lobules and columns of cells was normal. The liver cells were normal, except in places where they were slightly compressed by the crowding of the sinusoids with myelocytes. This was most marked just beneath the capsule. There were both basophilic and neutrophilic myelocytes singly and in groups. There were also many nucleated red blood corpuscles, often in close relation to clumps of myelocytes. Various types of nucleated reds were found, so that these collections of cells resembled those found in the spleen and in the bone marrow. The sinusoids contained everywhere much blood. The blood in the large vessels contained an excess of white corpuscles, in which large cells resembling myelocytes predominated. Many mononuclear eosinophiles were present in the sinusoids and in the blood of the large vessels.

Kidney: There was marked cloudy swelling of the convoluted tubules with slight fat vacuolation at the bases of the cells. The glomeruli, except for a few of fetal type, were normal. There were in the cortex a few elongated radial areas of connective tissue increase. These regions contained glomeruli of the fetal type and atrophic tubules. There was marked lymphoid and plasma cell infiltration and a few mononuclear and polynuclear eosinophiles.

Ileum: The solitary follicles were large with large and active germinal centers.

Tonsils and mesenteric and cervical lymph nodes: These all contained large and very active germinal centers. They all contained numerous mononuclear and polynuclear eosinophiles.

Bone marrow: That from the femur and vertebra showed marked activity. There were in both many erythroblastic centers, and nucleated red corpuscles were everywhere abundant. There was a great increase in the number of eosinophilous myelocytes. Megalokaryocytes were present in about normal numbers.

Diagnosis: Hematopoietic spleen and liver. Chronic focal nephritis and parenchymatous degeneration of kidneys. Lymphoid hyperplasia.

In spite of the frequency of these conditions, and in spite of the frequency of a fatal termination, pathologic data are comparatively few. The chief changes in the spleen are an increase in the connective tissue, usually associated with a diminution in the pulp. It never shows any changes in any way resembling those of leukemia, the changes being of the same sort as those found in other cachectic conditions, such as rickets (Sasuschin[5]) and syphilis (Hutchison[5]). The liver shows simple parenchymatous changes, fatty degeneration, such as is seen in all severe anemias, or simply lymphoid infiltration. The bone marrow shows nothing abnormal, merely the signs of increased activity. There are no changes suggestive of leukemia or in any way characteristic. The lymph nodes, if not normal, show merely the changes of chronic adenitis. Lymphoid infiltration has been occasionally found in the intestine.

Certain authors believe that anemia with splenic tumor in infancy is an aleukemic stage of leukemia or that it is leukemia modified by the peculiarities of the infant's blood and blood-forming organs. Aleukemic stages of leukemia certainly do occur, even in infancy, as is shown by the case reported in this paper. No one, however, has ever satisfactorily described a case of anemia with splenic tumor in infancy which has later changed to a true leukemia. No pure case of myelogenous leukemia has ever been reported, moreover, although anemia with splenic tumor is not at all uncommon at this age. Finally, the pathologic changes are radically different. The view that anemia with splenic tumor in infancy is merely leukemia modified by the

5. Jahrb. f. Kinderh., 1900, II, 297.

V 19

age of the patient is hardly tenable, not only because of the reasons just given, but also because true leukemia does occur at this age. Moreover, many of these cases recover entirely and the splenic tumor disappears.

It has been stated that these cases do not respond to treatment with the *x*-ray while cases of true leukemia do, and this statement has been advanced as a further argument against their leukemic nature. A case of Lommel's,[6] however, improved markedly under treatment with the *x*-ray, and the autopsy a year later showed a normal spleen and no evidences of leukemia.

The theory that anemia with splenic tumor in infancy occupies a position midway between pernicious anemia and leukemia was advanced at a time when the morphologic changes in the blood were not as well understood as at present and hardly deserves serious consideration. The postmortem appearances are not characteristic of pernicious anemia, iron is not found in the liver and the changes in the bone marrow are not those of pernicious anemia. Moreover, it is extremely doubtful if pernicious anemia occurs at this age.

A study of a large number of cases of anemia with splenic tumor shows that all grades of anemia, with or without leucocytosis, may be found when the enlargement of the spleen is inconsiderable. The cases analyzed in Table 1 illustrate this point.[7]

Patient 2204 had a systolic murmur in the heart;

TABLE 1.—ANALYSIS OF CASES OF ANEMIA WITH SLIGHT SPLENIC ENLARGEMENT

No.	Age in Months.	Spleen. Cm. below ribs.	Per cent. Hemoglobin.	Red Corpuscles.	White Corpuscles.	Small Mononuclear.	Large Mononuclear.	Polynuclear Neutrophiles.	Eosinophiles.	Myelocytes.	Mast Cells.	Morphologic Changes.	Etiology.
2526	18	2	65	5,872,000	22,600	32		65	1	..	2	Slight poikilocytosis. Some macrocytes, 1 normoblast, 1 megaloblast to 400 white cells.	Tuberculosis.
2019	16	2	45	4,700,000	21,900	67	5	26	1	1	..	Marked variation in size, shape and amount of hemoglobin in red cells. No nucleated forms.	Milk too long.
2204	11	2	20	3,083,000	23,000	55		43	0.5	1	0.5	Slight variation in size and shape of red cells. Slight polychromatophilia. 1 megaloblast to 500 white cells.	?
2608	6	3	45	2,499,000	8,000	36		60	..	..	4	Macrocytes predominate. Some microcytes. Slight poikilocytosis. Moderate achromia. 7 megaloblasts and 10 normoblasts to 200 white cells.	Improper feeding.
2899	13	2	25	1,256,000	9,000	47.5		49	..	3.5	..	No achromia. Slight poikilocytosis. 10 megaloblasts and 7 normoblasts to 200 white cells.	?
2917	11	1	30	1,296,000	7,500	69.5		28	1	1.5	..	Marked achromia and poikilocytosis. Excess of macrocytes. 3 megaloblasts and 5 normoblasts to 400 white cells.	Improper feeding. Bronchopneumonia.

TABLE 2.—ANALYSIS OF CASES OF ANEMIA WITH MARKED SPLENIC ENLARGEMENT

No.	Age in Months.	Per cent. Hemoglobin.	Red Corpuscles.	White Corpuscles.	Small Mononuclear.	Large Mononuclear.	Polynuclear Neutrophiles.	Eosinophiles.	Myelocytes.	Mast Cells.	Morphologic Changes.	Etiology.
2020	16	55	6,000,000	15,000	50	6	40	3	1	..	Moderate variation in size and shape of red cells. No nucleated red cells.	?
1300	10	40	4,000,000	18,700	34	13	51	..	2	..	Marked variation in size, shape and staining reaction of red cells. 9 megaloblasts and 16 normoblasts to 500 white cells.	Gastrointestinal.
2363	20	50	4,000,000	15,000	34	4	59.5	0.5	1.5	0.5	Slight variation in size and shape of red cells. Marked polychromatophilia. 8 megaloblasts and 2 normoblasts to 200 white cells.	?
1818	21	55	3,800,000	37,600	16	5	77	0.5	1.5	..	Moderate variation in size and shape of red cells. Slight polychromatophilia. 1 megaloblast to 500 whites.	?
1775	16	25	2,392,000	34,400	55	10	35.5	1	1	0.5	Some polychromatophilia. No nucleated red cells.	Prematurity. Gastrointestinal.
2827	19	30	2,344,000	7,000	64.5		34.5	1	..	..	Marked achromia and poikilocytosis. No nucleated red cells.	Syphilis (?).
2404	14	35	1,992,000	13,400	36	4	56	2	1	1	Character of red cells? 4 normoblasts to 100 white cells.	Gastrointestinal.
1952	16	15	904,000	9,600	28	8	62	..	2	..	Watery and streaky. Considerable variation in size and shape of red cells. Marked polychromatophilia. 4 megaloblasts. 5 normoblasts and 1 microblast to 100 white cells.	Gastrointestinal.

2608 a very large liver and marked edema; 2899 considerable edema; 2917 slight edema, ecchymoses and hemorrhage from the nose. The first three of these patients improved, two were discharged unimproved and the last died.

Further study shows that there may be, in some instances, extreme enlargement of the spleen with almost no changes in the blood, while in others the blood shows

6. München. med. Wchnschr., 1905, lii, 904.

7. Boston Med. and Surg. Jour., 1894, cxxxi, 133; 1903, cxlviii, 573.

most marked changes. The cases analyzed in Table 2 illustrate these points. In all of these the spleen reached to the anterior superior spine, filling the flank.[7]

The liver was enlarged in 2020, 1775, 2827 and 1952, but not in the others; 1952 had edema, ecchymoses and hemorrhages from the nose. Systolic murmurs were heard in 1818 and 2827; 2363, 1300, 1818, 2355, 2827 and 2404 improved under treatment; 1300 was well and the splenic tumor was gone in eighteen months; 1775 and 1952 died.

Splenic tumor is not uncommon in infancy when there is no anemia. The anemia may improve or entirely disappear without any change in the size of the spleen. The following cases are examples:

CASE 13.—No. 2827. February 19, hemoglobin, 30 per cent.; red corpuscles, 3,344,000.

March 3: Hemoglobin, 40 per cent.; red corpuscles, 3,200,000.

March 16: Hemoglobin, 45 per cent.; red corpuscles, 3,408,000. Size of spleen remained the same.

CASE 14.—No. 1818. May 26: Hemoglobin, 35 per cent.; red corpuscles, 3,800,000; white corpuscles, 37,600.

Fig. 1.—Liver (Case 12, No. 2,869) multiplied about 1,000 diameters. Hematopoietic center, showing myelocytes and nucleated red corpuscles.

June 18: Hemoglobin, 65 per cent.; red corpuscles, 5,104,000; white corpuscles, 28,800. Size of spleen remained the same.

CASE 15.—No. 2363. May 3: Hemoglobin, 50 per cent.; red corpuscles, 4,000,000.

May 20: Hemoglobin, 75 per cent.; red corpuscles, 4,800,000. Size of spleen remained the same.

The size of the spleen may diminish without any improvement in the anemia. The following case is an example:

CASE 16.—No. 3171. April 13: Hemoglobin, 60 per cent.; red corpuscles, 1,640,000; white corpuscles, 20,100. Spleen reached to navel.

April 17: Hemoglobin, 65 per cent.; white corpuscles, 40,200. Spleen about one-half as large.

April 22: Hemoglobin, 50 per cent.; red corpuscles, 1,304,000; white corpuscles, 50,600. Spleen 3 cm. by 4 cm.

The anemia responds to the same treatment and in the same way as do secondary anemias without splenic tumor.

It seems evident, therefore, that there is no relation whatever between the size of the spleen and the presence, absence or degree of anemia. Having no causal relation to each other, they must, when associated, be due to some common cause. They are both found independently as the result of disturbances of nutrition of various sorts. The pathologic changes in the spleen are the same whether the enlargement is or is not associated with anemia. The same blood changes are found both with and without splenic tumor. These blood changes are the same as those found in the ordinary secondary anemias without splenic tumor. It seems reasonable to assume, therefore, that when they are associated they are both manifestations of disturbances of nutrition. There is, therefore, no justification for putting cases of anemia with splenic tumor in a class by themselves under the head of splenic anemia, anemia infantum pseudo-leukemica, and so on. They should rather be classed as cases of secondary anemia with splenic tumor. It may be, however, as Rist suggests, that this, although the most satisfactory, is too simple an explanation and that the future will justify some other classification.

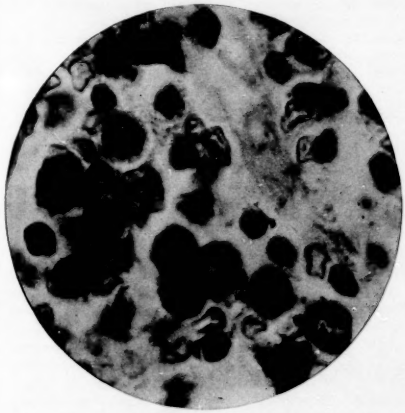


Fig. 2.—Spleen (Case 12, No. 2,869) multiplied about 1,400 diameters. Hematopoietic center, showing myelocytes and nucleated red corpuscles.

Secondary anemia with splenic tumor may or may not be associated with leucocytosis. A division into two classes on this basis, as suggested by some Italian authors (Petrone[8]), hardly seems necessary or justifiable, however. The division of the cases of secondary anemia with splenic tumor and leucocytosis into splenic anemia with myelemia, splenic anemia with lymphocythemia and even splenic anemia with eosinophilia (Labbé and Aubertin[9]), according to the predominance of the various forms of leucocytes, has been suggested. This division seems rather unnecessary and far-fetched, however, as the proportions of the leucocytes depend in these cases, as in the secondary anemias without splenic tumor, on the special chemotactic action of the causative condition.

Wolff,[10] basing his opinions on an unique case of his own, has come to very different conclusions as to the

8. Arch. gen. de méd., June, 1907; abstr. in Arch de méd. d. enfants, 1907, x, 752.
9. Rev. mens. d. mal. de l'enfance, 1907, xxv, 69.
10. Berl. klin. Wchnschr., 1906, xliii, 1565.

causation of these cases and as to the relation of the splenic tumor and the anemia. He removed the spleen from an 18-months-old baby with marked anemia. The blood before the operation showed 40 per cent. of hemoglobin, 467,000 red corpuscles and 37,800 white corpuscles. The infant gained two pounds during the next ten days and the blood then showed 51 per cent. of hemoglobin, 2,500,000 red corpuscles and 36,000 white corpuscles. The baby recovered entirely, and at the end of a year the blood contained 2,665,000 red corpuscles and 25,800 white corpuscles.

The spleen weighed 500 grams. There was marked induration due to thickening of the walls of the lacunæ of the pulp but no enlargement of the Malpighian corpuscles. There was an infiltration with large cells of various sorts free from hemoglobin but no increase of the lymphocytes. There was, however, a large number of lymphocytes in the larger blood vessels.

He believes that as the improvement in the general condition and blood followed immediately on the extirpation of the spleen that this organ stood in a causal connection, that these cases originate in a primary disease of the spleen and that they, therefore, present a completely characteristic disease picture. He explains the anemia by an increased destruction of blood corpuscles in the spleen or by the production of substances in the spleen which cause an increased destruction elsewhere.

While he does not identify this disease with Banti's symptom-complex he thinks that they have so many points in common—splenic tumor, trabecular hyperplasia of the spleen, cirrhosis of the liver, improvement after splenectomy—that there is probably some connection between them. While there are many points of difference between the two conditions, the greatest obstacle to considering them identical is the fact that in Banti's symptom-complex the course is slowly progressive to death, while very many of the cases of anemia with splenic tumor in infancy entirely recover. It is very possible, however, that while the physical signs and blood picture are essentially the same in all cases, the pathologic processes are different in different cases and that certain of them are of the same nature as Banti's symptom-complex. In such cases removal of the spleen will undoubtedly do good. The great difficulty at present is to know how to recognize these cases.

ABSTRACT OF DISCUSSION

DR. J. F. HULTGEN, Chicago: I should like to know how many children Dr. Morse examined in all and whether the children were absolutely normal or whether they were just recovering from some attack of gastric disturbance or some other condition. We know that there is a change in the blood picture following any disease, infectious or toxic, namely, a postinfective or post-toxic lymphocytosis. As to the blood picture returning to the infantile condition, I believe that Domenici of Paris invented that term and started a new line of investigation. This is the same as what happens when healing of any wound occurs. The attempt at repair of an injury is in the direction of a return to the fecal condition. As long as the body is in a vigorous condition the large mononuclear cells are increased in proportion to the degree of irritation. The predominance of lymphocytes in the hematology of the child is an exceedingly interesting and important question, one that has not been settled yet. We need young men to go into the study of hematology to work on it for years. The probability is that the lymphocytes do predominate in the normal infantile blood, but it should be demonstrated whether those children are perfectly normal at the time of examination. Dr. Morse's statement that he sees no reason for calling "chlorosis" a number of cases that look like chlorosis at a later age pleases me very much. That the patients improve under iron is no proof. Iron is a specific for any secondary anemia. I think that chlorosis is an obsolete term and the quicker we discard it the better. As to the relation between iron and the blood picture, if we consider the nature of the ferments and proferments we can imagine that the iron excites a particular part of the hematopoietic system, whence the production of blood corpuscles. I think that Dr. Morse has slighted the eosinophiles somewhat. I think it is likely they are derived from the large mononuclear cells, but, just how, we do not know. But there is a distinct relation between the eosinophiles and digestion and there is a distinct and established relation between the infections and the eosinophiles. The eosinophiles are in the vanguard of the leucocytes. They disappear very early in infectious diseases and they stay away very long.

DR. J. H. MASON KNOX, Baltimore: That there is no definite line of cleavage between these blood conditions is most important. One thing that should be considered in determining the degree of anemia in children or others, where there has been great loss of weight, is the concentration of the blood. Such children have anemia, but have a high percentage of hemoglobin and a large number of corpuscles, as determined by the usual method, because of the great loss of fluid. In such cases the determination of the specific gravity of the blood would be helpful in judging the degree of anemia.

DR. JOHN LOVETT MORSE, Boston: My figures regarding the normal blood in infancy were based partly on my own observations and partly on the literature. I have been working on this subject for the last fifteen years and think that I have the cases to prove the points which I have made. The hemoglobin and the specific gravity go hand in hand. What the last speaker said about the concentrated blood in these babies is perfectly true. One has to guess at the degree of anemia in such cases.

Clinical Notes

OVARIAN CYSTOMA OBSTRUCTING PELVIS AT TERM

WITH RECOVERY AFTER CESAREAN SECTION

A. BELCHAM KEYES, M.D.

Assistant Professor of Gynecology and Obstetrics, Rush Medical College; Professor of Gynecology, Chicago Policlinic; Attending Gynecologist to the Presbyterian, Policlinic, and Deaconess Hospitals; Surgeon to Cook County Hospital

CHICAGO

Patient.—Mrs. C. F. H., aged 33, German, primipara, married. Since puberty the menses had been regular (every 28 days) till pregnancy began. The last menstrual period (remembered) began about August 25 and supposed quickening was first noticed about January 18.

Labor.—The patient entered hospital in labor June 19, 1908, complaining of having had violent labor pains for fifty-three hours. The uterine contractions were strong and rapidly increased in frequency to one in every two minutes. Abdominally the child's lower limbs could be distinctly palpated near the fundus uteri. The child's head was easily palpated above the pelvic brim and apparently not larger than the average. The fetal heart tones were from 180 to 200 and weak. The external pelvic measurements of the mother were normal. Vaginally the cervix uteri was found dilated enough to admit two fingers easily. The head was high up and could be reached with difficulty, position left occipito-anterior. The bag of waters was still intact but accidentally ruptured during the examination, resulting in the discharge of the liquor amnii with much meconium. The posterior vaginal fornix was bulged forward by something giving at first the impression of a loaded sigmoid and rectum, though it had not the doughy feel of feces but rather the elastic sensation of a cyst. So far as one could judge, the internal pelvic measurements were normal, though the promontory was covered by the

tumor. During a pain the head showed but little tendency to engage, while the mass posteriorly drove the posterior vaginal fornix markedly forward into the vaginal lumen, the head (apparently normal in size) also becoming more prominently outlinable on the anterior abdominal wall. In a well-formed woman with a normally shaped and situated uterus and with an absence of any pelvic contraction or marked increase in the size of the child's head or other parts above the normal, the only inference possible was the presence of a mechanical obstruction probably due to a tumor in the cul-de-sac of Douglas. Attempts to reposit the obstructing tumor above the pedvic brim while the patient was in the knee-chest position were fruitless.

Operation.—Preparations were immediately begun and the abdomen opened by a 12 cm. median (Wagner) incision extending from the umbilicus downward toward the pubis. Compresses were now carefully packed between the abdominal wall and the uterus *(in situ)* to avoid contamination of the peritoneal cavity. The uterus was then also incised in the anterior median line, upper third, encountering the placenta, which was rapidly shelled off at one edge and the child rapidly delivered, the cord doubly clamped, and divided. The afterbirth was now rapidly delivered when the uterus retracted. The uterine incision was now closed by catgut *à étages*, and all compresses being removed, the exploration of the cul-de-sac revealed a cystoma firmly incarcerated under the promontory. The patient was now placed in the Nélaton position and the intestines walled off with fresh compresses. The tumor was then lifted out of the cul-de-sac of Douglas and delivered whole, its long, thin pedicle ligated, divided and the stump covered with peritoneum. The abdominal incision was now closed with catgut and through-and-through silkworm-gut sutures. The mother made an uneventful recovery. Unfortunately, though the child was delivered within one hour of the time I first saw the case, it could not be resuscitated.

An ovarian cystoma obstructing labor at term.

Tumor.—The cystoma was approximately of the size and tenseness of a half-filled two-quart fountain syringe, and as it lay on a flat surface measured 15x19x4 cm. Probably a more tense cyst could have been more easily displaced upwards.

The case is unique from the standpoint that the tumor must have been present before pregnancy began, and teaches the necessity, at as early a date as possible in every pregnancy, of making a careful and systematic examination (a) as to whether there is any tumor present; (b) whether the pregnancy be intrauterine or extrauterine; (c) whether the uterus be retroverted, and (d) whether the pelvis is contracted or of normal dimensions.

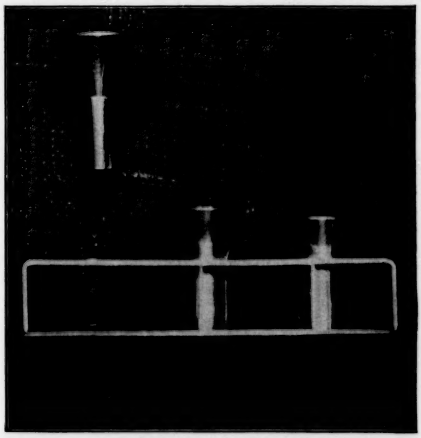
100 State Street.

MOLD FOR CARBON DIOXID SNOW

R. L. SUTTON, M.D.
KANSAS CITY, MO.

When carbon dioxid snow is employed as a destructive agent in skin lesions it must first be molded into suitable shape. If a large area is to be attacked a closely packed mass of the substance may be altered as required by means of a sharp knife, but in the majority of instances a "pencil" best answers the purpose.

In making these cylinders the snow is quickly transferred from the chamois, where it collects as it escapes from the reservoir, to a matrix or form, into which it is tightly pressed by means of a small rammer. The form or mold commonly employed is simply a short piece of hard rubber, glass or metal tubing. No one but a person who has had experience in filling these small caliber tubes realizes the waste of time and material the process usually entails.



Mold for carbon dioxid snow.

I have had made of German silver a set of three funnel-mouthed tubes, which renders this procedure a speedy and economical one. The internal diameter of the barrels measure 1, 2 and 4 cm., respectively, and all are of the same length, 4 cm. The freshly-made snow is transported from the chamois to the molds by means of a teaspoon.

Further to expedite matters the molds are set upright in a frame, the lower ends being sunk slightly below the surface of the platform. When the tube is filled the mold is withdrawn from the frame and the stick of snow pushed out.

HAMMOCK HEAD BANDAGE

SAMUEL E. NEWMAN, M.D.
ST. LOUIS

At the suggestion of several of my colleagues I wish to offer to the profession a new head bandage. Since an otherwise simple thing may be made complicated and incomprehensible by wordy details, I have tried to clearly illustrate each step of the procedure. The photographs and diagrammatic drawings are self descriptive, and require little further explanation.

Fig. 1.—Application of the hammock bandage; this is pulled taut and held by the patient.

Fig. 2.—A one-inch or two-inch bandage is applied around the head.

Fig. 3.—The ends of the hammock are elevated, the ears freed and the encircling bandage is continued.

METHOD OF APPLYING THE BANDAGE

After the dressings have been placed on the wound the head is put in a hammock composed of two layers of gauze (Fig. 1). This is pulled taut and held by the patient. A one or two-inch bandage is applied around the head, running from the glabella of the frontal bone to a point just below the posterior occipital bone (Fig. 2 and Fig. 6, A, B). I have found a narrow starch bandage of advantage for this purpose.

Fig. 4. — The ends are dropped and the encircling bandage covers in the folds thus made.

Fig. 5.—The excess material is cut away and the procedure completed by a few rounds of the encircling bandage.

The ends of the hammock gauze are elevated above the head and the ears freed before the encircling bandage is continued around its circumference. (Fig. 3 and Fig. 6, B, C). The ends are dropped and the running bandage covers in the fold, thus made in the hammock (Fig. 4 and Fig. 6, D, E). All excess material is cut away. The procedure is finished by a few rounds of the roller bandage (Fig. 5 and Fig. 6, F).

ADVANTAGES

The "hammock bandage" is undoubtedly a simpler and more effective one than the time honored "skull cap," and I heartily recommend it to the profession. This bandage possesses the following advantages:

1. Simplicity and ease of application.

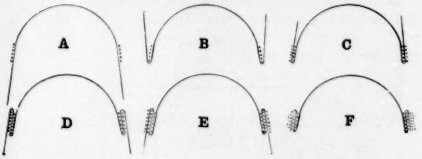


Fig. 6.—Schematic representation of the method of applying the hammock bandage.

2. May be used to cover a small area of the scalp or the entire surface.
3. Does not slip or come off if properly applied.
4. May be made to exert a moderate or firm pressure on the wound.
5. Economy of bandage material.

4900 Berlin Avenue.

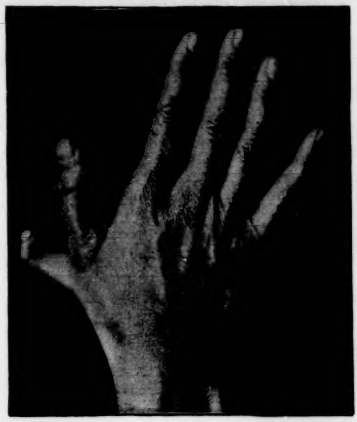
Infant Feeding.—Giving infants some form of food that will be retained and cause gain in weight is not necessarily good infant feeding. The food must contain enough proteids and mineral matter to repair waste and produce new tissue, and enough fats and carbohydrates to supply energy; except, of course, when the infant is sick or suffering from indigestion, when it may be necessary to give temporarily a one-sided diet.—G. R. Pisek, in *Amer. Jour. Obst. and Dis. of Women and Children.*

A CASE OF POLYDACTYLISM

W. A. STROTHER, M.D.
BEDFORD CITY, VA.

The accompanying illustration shows an interesting case of polydactylism. The patient is a white woman, 35 years of age. She says that, so far as she knows, there is no history of polydactylism in her family. She has five children, all of whom are normal in this respect.

The supernumerary thumb here shown is well developed and shows a well-defined metacarpo-phalangeal joint, which is capable of flexion and extension to a slight degree. The phalangeal joint is also well defined and exhibits some degree of flexion and extension.



A case of polydactylism.

A supernumerary thumb on the other hand was stitched to the normal thumb in infancy, and the result of the union presents the appearance of a very wide thumb with a single wide nail.

IMPROVED METHODS OF APPLYING PLASTER SPICAS AND JACKETS

ARTHUR HOLDING, M.D.
ALBANY, N. Y.

My attention has been called many times (1) to awkward methods of applying spica bandages to patients relaxed by an anesthetic, after operating on an inguinal hernia, for instance; (2) to awkward methods of supporting the shoulders, head and feet while applying plaster-of-Paris bandages, as for coxitis, to adults and children when not under an anesthetic; and (3) to the frequency of threatened syncope in adult patients when suspended by Sayre's apparatus for the application of plaster-of-Paris jackets.

The following methods have been of much service to me in my practice and are presented in the hope that they may be helpful to others in solving these problems: The first is simple and the necessary accessories can be found in any hospital. The second is more complicated, but will find numerous uses in any hospital where much bone work is done (which means every hospital).

The device for applying a plaster-of-Paris spica to an anesthetised patient may be arranged as follows: At the foot of the operating table place a small table whose top is about eight inches below the level of the operating table. If tables of different height are not at hand the operating table can be raised on blocks. When ready to apply the spica bandage place the hip support on the low table in position and draw the patient down over

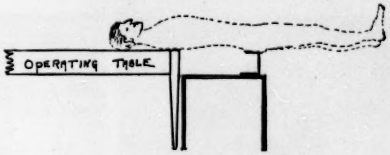


Fig. 1.—Improved method of supporting patient while applying a plaster-of-Paris spica bandage to secure immobility of the ulcerated and diseased bony surfaces.

the end of the operating table until his shoulders and head alone are supported on the operating table and his hips rest on the hip support, his legs being supported by an assistant.

The device for applying plaster-of-Paris spicas or jackets to conscious patients was suggested by the need

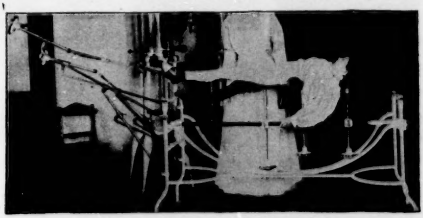


Fig. 2.—Stein apparatus.

of overcoming two difficulties. Adults commonly "faint" when a jacket is being applied by the Sayre suspension method. To avoid this syncope the extension is often relaxed to the detriment of the jacket. The difficulty with the Goldthwaite frame is lack of extension. It occurred to me that a modified Sayre's

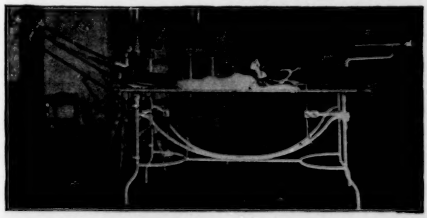


Fig. 3.—Improved method of supporting patient while applying a plaster-of-Paris spinal jacket to secure immobility of the diseased vertebra. This device combines the advantages of the Goldthwaite frame and the Sayre suspension methods. It obviates the discomfort of vertical suspension by head and arms. This advantage is particularly noticed in treating adult patients. Note that child is lying on a muslin stretcher support.

extension applied to a Goldthwaite frame would solve both difficulties. Just at this time I became acquainted with Stein's extension apparatus. With a few modifi-

cations this table has become a most valuable aid to my orthopedic work.

The original use of the Stein apparatus is clearly indicated in Figure 2. The objections to its usefulness as a general orthopedic table are: first, the fact that the original body supports are so large that they interfere with the application of the plaster bandages; second, that the leg extension arms should have joints permitting of any degree of abduction or adduction of the leg; and, third, that in applying jackets, hyperextension of the spine to relieve the pressure on the bodies of the vertebræ can be more readily obtained with the patient lying on the abdomen than on the back. Therefore modifications to the table were made as illustrated in the accompanying photographs and described below.

For applying spica bandages the apparatus is used as represented in Figure 2, except that a small metal hip support is substituted for the original large leather-covered hip support. For applying plaster-of-Paris jackets the supports in the original Stein apparatus are removed and a Goldthwaite frame is placed on top of the table resting at A-B-C-D (Fig. 3). In cases of lateral curvature the forcible corrective circles of Lovett can be applied to the Goldthwaite frame.

Thus one may have an excellent orthopedic table which can be used as an ordinary operating table or, by the attachment of the accessories, combines the virtues of Sayre's, Goldthwaite's and Lovett's apparatus.

I am indebted to Dr. James F. Rooney of Albany for the excellent photographs of the apparatus.

98 Chestnut Street.

BARREL-HOOP SPLINT FOR FRACTURE OF THE CLAVICLE

LEIGH F. WATSON, M.D.
OKLAHOMA CITY, OKLA.

Fred. W., aged 10, was struck by a street car on June 4, 1908, and sustained a complete oblique fracture of the middle third of the left clavicle. He was admitted to the New York Polyclinic Hospital and treated in the service of Dr. John A. Bodine.

A splint was made from a wooden barrel-hoop long enough for the ends to fit snugly into the infraclavicular fossa while

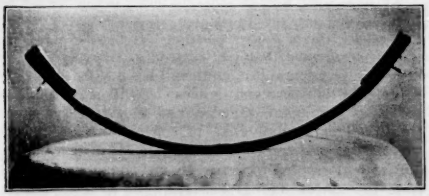


Fig. 1.—The barrel-hoop splint.

the shoulders were drawn upward, backward and outward, by an assistant standing behind the patient. A short piece of the hoop was fastened to the inner surface of each extremity of the splint. (Fig. 1.)

The nails were left projecting to prevent the bandage slipping. This extra piece made immobilization firmer and allowed free movement of the chest in breathing. The ends of the splint were then padded with cotton. A cotton pad was put in each axilla to prevent chafing. While the assistant held the shoulders upward, backward and outward the fractured ends were approximated and the splint applied and firmly secured by a figure-of-eight bandage. (Figs. 2-3.)

Dr. Bodine suggests that, in such cases, if there is not accurate coaptation of the fragments, a small roll pad may be placed above and below the seat of fracture and an adhesive strip secured to the back of the shoulder and brought down over the fracture, and fastened to the front of the chest, or used as a sling for the forearm of affected side.

Fig. 2.—The barrel hoop splint applied.

Long strips of adhesive plaster were applied over the bandage to prevent loosening from slipping and stretching. The patient had no pain at the seat of fracture while wearing the splint, and used the arm of the affected side as freely as the other. Union was prompt and without deformity.

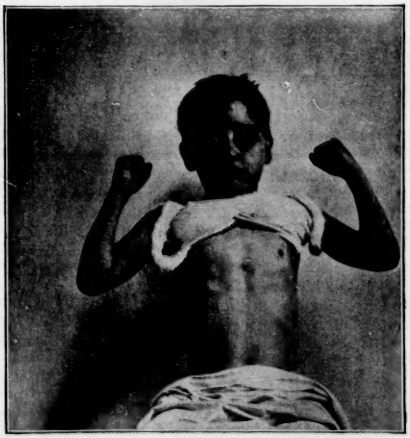


Fig. 3.—The barrel-hoop splint applied, showing amount of rigidity secured in spite of arm motion.

The advantages of barrel-hoop splint may be given as follows: 1. Simplicity and ease of application. 2. No discomfort to patient, nor detention from light work—nor from school, in case of children. 3. No possibility of shoulder or elbow-joint adhesion as an after result.

DEAF-MUTISM, WITH REPORT OF CASES*

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There is much evidence to prove that occlusion of the Eustachian tubes is the primary cause of deafness in the majority of cases among children who retain their speech. An attempt to point out why occlusion of the tubes is probably the primary cause also of deaf-mutism is one of the purposes of this paper. To do this I must first call attention to those conditions in the middle ear which are the prompt results of complete and partial occlusion of the Eustachian tubes.

CAUSES OF DEAF-MUTISM

When the occlusion of the tubes is complete the surrounding tissues absorb the gases in the air which is pent up in the middle ears. A vacuum is thus created and the atmospheric pressure of fifteen pounds to the square inch is brought to bear on the occluded openings of the tubes and tympanic membranes. We may expect such a pressure to rupture the membranes or force entrance through the tubes. When the tubes are only partially closed or entirely closed except in the act of swallowing, at which time the pharyngeal muscles pull them open and allow some air to enter the middle ears, the membranes may not be ruptured but subjected to

Suction instrument for reducing dislocations of the ossicular chain in deaf mutes.

considerable pressure which would have the effect of forcing them inward.

This movement of the membranes carries the ossicular chains inward also, and the brunt of the pressure is borne by the foot of the stapes where it rests in the oval windows. The pressure may be sufficient to cause inflammatory reaction where the stapes impinges within the windows. The amount of the pressure and, therefore, the intensity of the reaction will be in proportion to the amount of air which finds its way through the occluded tubes; the less air, the greater the pressure and the inflammatory reaction. The resisting power of the tissues varies with the general condition of the subject affected, and the amount of damage will therefore be different for the individual; in one slight damage may occur; in another the inflammatory reaction may be sufficient to destroy the adjacent tissue and extend to the more essential parts within the labyrinth and produce the pictures found in autopsies of the deaf showing much destruction of the nerve routes. Such patients are incurable, of course.

Erroneous opinions might have arisen easily from such findings; the investigators, seeing inflammatory evidence localized here about the labyrinth only, might decide that the primary cause was spontaneous labyrinthitis when the primary cause was perhaps to have been found in the occlusions of the tubes by adenoids in the pharynx or by granulations in the fossa of Rosenmüller.

But this is a digression. I wish to point out what seems the very important fact that forcing the stapes too deeply into the oval windows and its retention there is equivalent to a dislocation of the stapes, because the stapedius muscle, the only function of which is to support the stapes in its proper relation to the labyrinth, would be put on such continuous tension as would cause it to lose its contractile power. Occlusion of the Eustachian tubes causing pressure on the tympanic membrane sufficient to dislocate the stapes and prostrate the stapedius muscle, then will cause deaf-mutism if it occurs in young children. Given sufficient occlusion to prostrate the stapedius, any very young child might become a deaf-mute, because hearing depends on the proper position of the stapes. When the stapes is forced into the oval windows Nature depends on the stapedius muscle to replace it; if the power of the muscle is lost the stapes can not replace itself. It may lie ever so lightly in the window and the stapedius could not replace it any more than a string tied to it could replace it of its own volition. For that muscle to gain control of the stapes and give hearing once more, the stapes must be placed in position.

The reason we have not given hearing to deaf-mutes heretofore is that we could not pull the stapes outward from the oval windows; that is, we could not reduce the dislocation. Neither inflation nor suction with Politzer's bag will effect the reduction. Pulling or pushing the tympanic membranes will not avail. Nature in her efforts often clears the Eustachian tubes and reestablishes the air pressure, and on inspecting the ears we see the tympanic membranes and the malleus in their proper positions and the ears to all appearances normal.

There is considerable play in the ossicular chain between the malleus and the incus, which permits the membrane with the malleus to swing outward when the tubes are opened. Such movement does not move the stapes outward or permit the tone of the stapedius to return.

We have long needed some artificial device to act as a substitute for the prostrated stapedius to pull the stapes back to its proper position. It has been repeatedly demonstrated that just as soon as the stapes is set in proper position a deaf-mute will hear. The stapedius will regain its power and the hearing will remain unless the tubes are again occluded and the stapedius prostrated. This applies alike to congenital and the acquired deaf-mutism.

I have attempted to devise an instrument which will raise the stapes and give hearing to such deaf-mute patients as have not had the stapes bound too strongly by the results of inflammatory processes. That it would tend to move the stapes may be demonstrated by attaching the instrument to a glass model of the ear which I have also constructed.

In applying this method for relief of deaf-mutism it is necessary that the tubes be open. The attitude of a child's mind should be expectant and cooperative because the centers of hearing and speech are dormant in deaf-mutes.

I have exhibited from time to time to the profession some practical results I have been able to get in apply-

* Read before the Sixth District Medical Association of Georgia, Macon, Nov. 11, 1908.

ing the method to the relief of deaf-mutism. Those patients shown at Savannah and some treated since retain their hearing and speech. After hearing is established the use of words has to be acquired and it usually necessitates persistent teaching. The work is being done under considerable handicap because of lack of material.

Dr. Love, of Glasgow, who has had ample opportunity to observe, says that about 70 per cent. of deaf-mutes have enlarged tonsils or adenoids, which would indicate that in a large number of deaf-mutes occlusion of the tubes is the primary cause of their deafness. What percentage of these may be benefited is yet to be determined.

In the attempt to demonstrate new medical ideas, mistakes are apt to be made and burning criticism will surely follow. It is usually of that old brand which condemns without investigation and would crucify professional character without a trial. It has caused lasting heartaches to some of the best and brightest men the medical profession has ever known.

The criticisms are, as a rule, of such a nature as to be easily refuted; if, however, the publication of the scientific principle were withheld until criticisms were refuted, the truth would lose something of its prestige, the deaf something of value, while the physician sought some selfish vantage.

REPORT OF CASES

In order that comparisons may be drawn between the first cases having hearing established and those coming later, I have selected the cases of two patients whose hearing was established in 1898-9, and other cases which have come to me within the past twelve months:

CASE 1.—The patient, M., aged 18, a deaf-mute from birth, came for treatment in 1898. On inspection, the general appearance of the ears were normal, the tympanic membranes somewhat retracted. On a test of air conduction, there was perception of loud sounds when made very near, somewhat better in the left ear than in the right. The bone conduction was normal. The patient had adenoids which were not removed. The tonsils were not diseased. He was under treatment once a day for three months, at the end of which time he had hearing in his left ear for words spoken in a conversational tone, but no improvement in the right ear. He has retained his hearing and learned to talk. Various experiments were tried in this case, and hearing was not improved until an attempt was made to raise the stapes from the oval windows by suction.

CASE 2.—The patient, Miss S., aged 12, a deaf-mute from birth, came for treatment in 1899. On testing by aerial conduction, I found that hearing existed for loud voices near by. Bone conduction was normal; tympanic membranes normal in appearance and in position; except for a few adenoids which were not obstructing the Eustachian tube, the throat also was normal. There was marked improvement in the hearing after the first treatment. After ten days the patient could hear words spoken in a low tone. She retains hearing for conversational tones. No effort has been made to train her to speak, and she has picked up only a few words. She is very poor, and her mentality is below the average.

The next cases are those which came to me this year.

CASE 3.—The patient, Miss J., aged 10, came for treatment in February, 1908, with a history of deafness caused by measles one year previous. Her ears suppurated and she became profoundly deaf and lost the power of speech almost entirely while under the care of other specialists. Examination revealed retracted tympanic membranes and adenoids which closed the Eustachian tubes; bone conduction good; hearing by aerial conduction nil. After three months she could hear words spoken near the left ear. After eight months she hears conversation by use of the speaking-tube in the left ear, but hears very little with the right. She has regained the power of speech and carries on conversation by use of the speaking-tube. There is a slow but steady improvement in hearing through the use of the suction massage instrument.

CASE 4.—A little girl, aged 4, child of a physician, came July 25, 1908, with a history of congenital deaf-mutism. Her parents stated that they noticed that she did not begin to talk at the usual age. They then discovered that she was deaf. On inspection the tympanic membranes were strongly retracted, and there was evidence of adenoids and closure of the Eustachian tubes. Bone conduction was good. The patient gave no evidences of hearing by aerial conduction. I began treatment by removing the adenoids thoroughly under general anesthesia. She was then allowed to go home for a week. When she returned, treatment was given once a day for a week, at which time she began to hear and talk. She was again taken home, caught cold and returned after ten days with catarrhal discharge from both ears, the Eustachian tubes being tightly closed. Under treatment again, these conditions were relieved, and the patient began to talk once more. After three months she now hears a whisper at a distance of three feet, speaks words and sentences quite freely, and gives promise of gaining her lost powers in full.

CASE 5.—The patient, a boy, aged 8, came for treatment July 28, 1908, with a history of having had some hearing and speech when about 2 years old: He had suddenly stopped speaking. At the time he came to me his hearing by aerial conduction was good for words spoken near and in a very loud tone. He retained the use of the words "mamma" and "papa." On inspection, tympanic membranes were found to be slightly retracted, and there was partial closure of the Eustachian tubes. He had been operated on the year before for adenoids without any beneficial effect on his hearing. Under general anesthesia, I removed with my finger granular tissue from Rosenmüller's fossa. Treatment began three days afterward, and improvement came in the patient's hearing, speech, and general expression at once. After three months, he hears and speaks almost normally, and his expression has changed from that of a semi-idiot to that of a bright, beautiful boy.

CASE 6.—The patient, a girl, aged 16, had begun to speak at the usual age and suddenly ceased. She was taken to a specialist and had adenoids removed with no good effect on her hearing. I found her profoundly deaf and dumb. The tympanic membranes were slightly retracted, and air could be forced through the Eustachian tubes. I operated for adenoids under general anesthesia, and broke down granular masses in the fossa of Rosenmüller. The next day I made an attempt to raise the stapes, and after the treatment could get no evidence whatever of any ability to receive sound. She is one of the many patients in whom probably the adhesions binding the ossicular chain are too strong to be broken.

The family history as to other deaf-mute members was negative in all these cases.

THE CONDITION OF THE PERIPHERAL BLOOD VESSELS IN SHOCK.—In the article with the above title, by Drs. M. G. Seelig and E. P. Lyon of St. Louis, in THE JOURNAL, Jan. 2, 1909, page 45, the accompanying illustration was incompletely printed. Through a defect in the cut the heavy marks in the line showing the seconds were eliminated, rendering the illustration pointless.

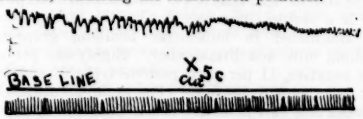

Fig. 2.—Tracing indicating outflow of blood in experiment on Dog 3. Very low blood pressure. Animal in profound shock approaching *exitus lethalis*. Division of sciatic (X) followed by a proportionately more rapid outflow from femoral vein than in Fig. 1. Time markings, 1 second. The distance between the heavy marks represents the time required for the flow of 5 c.c. of blood.

A REPORT OF FORTY-EIGHT NEW CASES OF PARATYPHOID FEVER (TYPE A)

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The scientific investigations of the last decade have shown that paratyphoid has the same geographical prevalence as typhoid fever. Since Achard and Bensaude, in 1896, described the first two cases of this disease and called it *infection paratyphoidique*, several hundred cases have been recorded. Soon after Achard and Bensaude's discovery Widal and Nobecourt isolated an organism from a post-typhoid abscess which was identical with that described by the former observers. Acting on Gilbert's suggestion, they named it para-coli infection. Later Cushing, Hewlett, Coleman and Buxton, Longcope, Libman and Meltzer reported cases in America.

In Germany, Schottmüller and Curth were the first to recognize cases of paratyphoid fever. Schottmüller was the first to divide paratyphoid bacilli into two groups, based on cultural and agglutination differences. De Feyer and Kayser confirmed the observation of Schottmüller and divided paratyphoid bacilli into two groups, A and B.

During the last five years a great many analogous observations have been reported, which nearly all belong to Schottmüller's paratyphoid, Type B. Infections with paratyphoid bacilli, Type A, are rare; in Germany, where typhoid cases have been closely studied, only a few cases of para A have occurred.

Netter is the only European who has reported a number of cases of paratyphoid fever caused by the para A bacillus. He reported seventeen cases, but his observations were made by agglutination tests only; blood cultures were not made. It appears that paratyphoid fever A occurs more frequently in the United States than in Europe.

METHODS OF INVESTIGATION

Before reporting our findings we wish to describe the methods we employed in making blood cultures and agglutination tests. From May 1, 1907, to May 1, 1908, there were 262 medical patients in the Allegheny General Hospital who had fever or abdominal symptoms or both. From every one of these patients 3 to 5 c.c. of venous blood was taken under aseptic precautions and put in 60 c.c. of a sterile mixture of two parts of calf bile, one part bouillon, 10 per cent. glycerin and 2 per cent. peptone. This was then incubated for fifteen hours at 37 C., after which it was inoculated on tubes of agar. The agar was then incubated at 37 C. for fifteen hours. At the end of that time it was examined microscopically, and if a motile Gram-negative bacillus was present it was inoculated in milk-sugar bouillon, grape-sugar bouillon, milk and litmus-whey. Eighty-one per cent. were negative, 11 per cent. positive typhoid, and 8 per cent. were para A positive. (For rapid, accurate, clinical work it is only necessary to put the blood in calf bile bouillon, incubate for fifteen hours and then inoculate the above-mentioned culture media with it. In this way it is possible to reach a diagnosis in a period of only thirty hours.)

All agglutination tests were made by Proescher's method[1]; the serum used was obtained from animals which had been inoculated with pure cultures of para A and para B bacilli and subsequently developed an agglutination-titer of 1 to 40,000.

Morphologically, the paratyphoid bacillus is similar to the typhoid bacillus, but is generally a little shorter and has from eight to ten flagella and possesses a high degree of motility. It stains with the usual anilin dyes and is Gram-negative. It ferments grape-sugar, but not milk-sugar, produces no indol, and does not coagulate milk. The surface growth on agar and gelatin can not be distinguished from typhoid cultures. The cultural distinctions between the two groups of paratyphoid bacilli is that A produces a constantly acid reaction in litmus-whey, the solution always being red, while B first turns litmus-whey red, then blue and continues alkaline. This difference is constant, but the agglutination test with an artificial serum is the most reliable method of differentiation. Para A is not so fatal to mice, guinea-pigs and rabbits as para B. The lethal dose of para A is a hundred times more than the lethal dose of para B.

The organisms isolated from all our patients were exactly the same, and they were identical with paratyphoid A bacilli obtained from other laboratories for comparison.

A complete report of our laboratory investigations, together with a review of all the cases that have been studied and reported throughout the world, will be published at a later date.

CHARACTERISTICS OF DISEASE

Etiology.—Season, age and sex play the same part in this disease as in typhoid fever. Most of the cases occur in September and October, but a few in March, April and May. In the 48 cases studied, 17 patients were females and 25 males. From 20 to 30 is the most susceptible period; 75 per cent. of the patients were in the third decade of life; 3 were under 20, being 15, 17 and 19 years old. Ten were between 30 and 40; one was 48, and another, the oldest, was 66. Six of the forty-two stated that they had previously suffered with typhoid fever. Their statements were probably correct, but we can not be positive.

Immunity.—Typhoid fever does not confer immunity from paratyphoid fever. An attack of paratyphoid fever usually immunizes from subsequent attacks. The period of incubation varies from two days to two weeks. Two persons who accidentally swallowed small amounts of a pure culture became ill, one five days and the other seven days after imbibing.

Onset.—This is not so gradual or insidious as in typhoid fever. Headache, backache, stiff neck, soreness of all the muscles, especially those of the back and legs, unnatural fatigue and anorexia are the initial symptoms in the majority of the cases. Fifteen per cent. of the cases start with acute catarrhal pharyngitis, sore throat, a dry, unproductive cough and chilly sensations. In 22 per cent. of the cases, the onset more closely resembles typhoid fever, the chief symptoms being nausea, vomiting, diarrhea and abdominal tenderness. Headache occurs in nearly all cases; epistaxis less commonly than

1. For Proescher's method of agglutination, see Centralbl. f. Bakteriol., 1902, abth. I, p. 400. On account of lack of time, the feces were only examined in ten cases; in four of them the para A bacillus was isolated. Methyl-green agar was found to be the best medium for this purpose. Urinary examination was made in fifteen cases, the bacteria only being recovered from one.

in typhoid; 20 per cent. of the patients complained of diarrhea and 25 per cent. were constipated. The tongue is covered with a thin white fur.

First Week.—Headache is the most constant symptom; toward the end of the week the spleen enlarges and becomes tender and a roseolar rash may appear on the abdomen. Headache usually stops before or early in the second week.

Second Week.—Slight tympany, abdominal distention and constipation or diarrhea occur. In contradistinction to typhoid fever, in this disease the appearance of the tongue is the same throughout the disease. It is moist, covered with a thin white fur and is normal in size and shape. The tip and edges are not clean. It does not become dry, swollen, brown, fissured and sore. From the seventh to tenth day, in most cases, the temperature begins to fall, the appetite returns and convalescence sets in.

Variations.—These are frequent in onset and course. According to the most pronounced symptoms of onset, the cases may be divided into three groups: 1, those in which nausea, vomiting, diarrhea and abdominal tenderness are the chief symptoms (22 per cent. of the cases belong to this group); 2, those in which the predominating symptoms are acute catarrhal pharyngitis, sore throat and cough (these constitute 15 per cent. of the cases); and, 3, the greatest number, the typical cases, in which the patients complain of severe headache, backache, stiff neck, marked soreness of all the muscles, but especially those of the back and legs and excessive fatigue. The most striking symptom in this group is the stiff neck. In some cases the onset is sudden; in all it is more rapid than in typhoid fever.

Temperature.—The temperature curve was not like the classical one described by Wunderlich. It rose less gradually, sometimes abruptly; the daily fluctuation was greater; the fastigium was much shorter and not so high. On the first, second and third days the evening temperature was 1½ degrees F. higher than the evening temperature of the day before, and each morning there was a remission of a fraction of a degree. The highest temperature was reached the evening of the third or fourth day and was about 103 F. During the next three or five days the evening temperature maintained the same level; each morning there was a remission of 1 to 1½ degrees. From the sixth to ninth day lysis began in most cases. The temperature fell a degree every evening and the morning remission was marked; the temperature became normal about the fifteenth day. Hyperpyrexia did not occur and the temperature in itself was never a dangerous symptom. After the temperature had been normal for a week, a relapse might set in and be of shorter, equal or longer duration than the initial attack.

Skin.—In one-third of the cases, those of patients in whom the temperature stayed about 100 F. for more than ten days, a roseolar eruption appeared on the abdomen and one on the chest. It consisted of discrete, circular, elevated, flattened papules, 2 to 4 mm. in diameter, which disappeared on pressure and reappeared when the pressure was removed; they lasted from three to six days and gradually faded away. No other signs appeared on the surface of the body, and in this the disease differed from typhoid fever.

Mouth.—When first observed the tongue was uniformly covered with a white fur, moist, did not become brown, dry, enlarged or fissured nor painful and rapidly cleaned up when the temperature returned to normal. Acute catarrhal pharyngitis occurred in six cases; the mucous membrane was dry, red and injected. Parotid abscess occurred in one case. It was opened, drained and rapidly healed; the pus was not examined.

Respiratory System.—Acute catarrhal laryngitis, cough and bronchitis occurred at the onset in twelve cases. Pneumonia occurred in one case, that of a patient who had been ill in bed at home for three weeks, and was admitted with lobar pneumonia involving both lungs.

Circulatory System.—The pulse was from 80 to 110, and the pulse-temperature ratio was about the same as in typhoid fever. Dicrotism occurred in only three cases, which was in contrast to typhoid. The pulse was regular and of good tension. After the seventh day the pulse became slightly irregular in some cases. No heart lesion developed during the disease.

Gastrointestinal Tract.—Nausea and vomiting were present at the onset in some cases, but soon disappeared. In many patients the bowels were normal at onset and later became constipated. Unfortunately the stools were not studied. Slight tympany and distention occurred in some cases, but was of short duration. Abdominal pain and tenderness was present at the onset in nine cases. A mild diarrhea, which lasted less than a week, occurred in about 20 per cent. of the cases. The majority of the patients, while in bed, were constipated.

Urinary System.—The variation from normal in the urine was slight. Retention occurred in one case. In 25 per cent. of the cases the Diazo reaction was positive. The urine was examined for bacteria in fifteen cases, but was present in only one.

Liver and Spleen.—The liver was found enlarged in three cases. The area of splenic dulness was increased, the organ not palpable, in ten cases; in fourteen cases the spleen was palpable and tender.

Complications.—These are rare and probably never fatal. One patient developed a parotid abscess and recovered. A patient who had been ill in bed at home for three weeks was admitted with consolidation of both lungs and died in less than twenty-four hours after admission. No one can say whether the pneumonia was a complication of paratyphoid fever or the paratyphoid an occurrence in the course of some other disease.

Prognosis and Mortality.—The prognosis is far more favorable than in typhoid fever, since complications are few. Death is only a possibility. Recovery is rapid and uninterrupted in most cases. The mortality is less than 2 per cent.

CONCLUSION

Paratyphoid fever is a distinct disease, differentiated from typhoid fever by the following characteristics:

1. It is due to an infection by a bacillus which is not the typhoid bacillus.

2. The onset is more sudden, the duration shorter and the disease milder than typhoid fever.

3. Hyperpyrexia never occurs, complications are rare, and there are no sequelæ.

4. The mortality is less than 2 per cent.

On account of the variability of the initial symptoms, the maintenance of fever for more than two weeks in some cases and the frequent similarity of irregular cases to mild cases of typhoid fever, a positive clinical diagnosis can rarely be made. All require, and should have, for exact diagnosis, an examination of the blood and the recovery, growth and recognition of the bacteria.

The 48 cases described in this paper occurred in the service of Drs. O.Hail, Wolf and MacNaugher, members of the medical staff Allegheny General Hospital. We wish to express our indebtedness to them for the use of their clinical charts and records.

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Therapeutics

TOXEMIAS OF PREGNANCY

The disturbances of the last month of pregnancy and some of the severe conditions at parturition are due to varying causes, and the treatment that is efficient and satisfactory in one instance may not be efficient in another.

Dr. Collin Foulkrod, Philadelphia, in the *American Journal of the Medical Sciences*, October, 1908, well discusses this important subject.

He cites the following causes of toxemias due to or during pregnancy: These are intestinal indigestion; disturbances of the parathyroids and thyroid; disturbances in the fetal organism, in the placenta, in the kidneys, or in the liver. He emphasizes the seriousness of changes in the liver, and believes that when metabolic disturbances have involved the liver the patient's condition is serious.

He believes that 50 per cent. of pregnant women suffer from some form of intestinal disturbance, and it is certainly true that intestinal disturbances are concomitant with or preliminary or subsequent to most toxemias.

When instances occur which are positively demonstrable of serious toxemias being caused by prolonged constipation, it is certainly logical to presume that constipation even in a mild form is provocative of the absorption of toxins that should have been eliminated by the intestines. These toxins seriously impair the perfect activity of the liver, to which they first go through the portal circulation. If the liver is so continuously irritated it can not well do its normal work, and more or less toxins or irritants to metabolism soon get through this filter into the systemic blood and cause nervous, circulatory and kidney irritations. Such irritations at first, and perhaps continuously, may be inconsequential, but they may be the forerunners or the instigators of serious conditions in the latter part of the pregnancy. A primary axiom in pregnancy, then, should be that constipation must not be allowed, and such means must be inaugurated and persisted in as will prevent constipation, intestinal stasis, intestinal fermentation, putrefaction and the absorption of toxins. If any one of the digestive organs is not properly functionating it should be assisted, if possible, and the diet so arranged as not to aggravate this disabled organ, and to relieve it of as much work as possible.

It is now acknowledged, both physiologically and clinically, that the thyroid gland normally hypersecretes during pregnancy. This is doubtless necessary to neutralize the nitrogenous poisons that occur from the double metabolism of mother and child. If the thyroid does not secrete properly, various toxemias occur. A malsecreting thyroid can probably allow pernicious vomiting to occur during pregnancy, can certainly interfere with the nutrition of the fetus, can interfere with the health of the mother, and can allow puerperal eclampsia.

If by a careful study of the pregnant patient it is decided that the thyroid gland is not properly secreting, thyroid substance should be administered. The dose during pregnancy should be small. Just preceding parturition, if it is feared that eclampsia may occur, and especially if the kidneys are insufficient, thyroid should be given in large doses; and if eclampsia does occur, it should be given in very large doses. If a patient gives birth to a child showing imperfect development or symptoms of under-thyroid secretion, although it might not be a cretin, certainly thyroid should be administered to the mother throughout her subsequent pregnancies, unless the symptoms present forbade its use. A daily dose for a pregnant patient, short on thyroid secretion, should not be more than 0.20 gram (3 grains) once a day, while a patient who showed serious toxemia or critical symptoms of metabolic poisoning should receive 0.30 gram (5 grains) three or four times a day for a short period. A patient needing thyroid just before or during parturition may be given 0.60 gram (10 grains) once or twice, while a patient with eclampsia may be given 1.30 grams (20 grains) at one dose.

While Foulkrod speaks of disturbance of the function of the parathyroids being possibly a cause of toxemia, it has not yet been proved. Consequently under what conditions prepared parathyroid gland substance should be administered to the pregnant woman has not been determined, and therefore its administration would be empirical.

Malnutritions of the fetus and degenerations of the placenta may cause the formation and absorption of toxins that will poison the mother. Such toxemias partake of the nature of blood poisoning. The cause being discovered and improvement not soon taking place would seem to call for cleaning out the uterus—this, of course, after a consultation.

Foulkrod does not believe that primary kidney toxemias are so frequent as primary liver toxemias, but believes that a secondary kidney disturbance may be the consequence of almost any toxemia. This has doubtless many times been the cause for laying the blame of pregnancy toxemias on the kidneys when these organs have not been at fault.

As Foulkrod says, a pure uncomplicated true nephritic toxemia should certainly be discovered. A uremic condition from nephritis of pregnancy must almost always be a progressive condition. Consequently a progressive chronic nephritis can only be overlooked by utterly neglecting to make proper examinations of the urine. If a chronic nephritis, by evidences in the urine, shows a progressive inflammation, a final toxemia, due to allowing a pregnancy to continue too long before interference,

should be prevented. Consequently the most serious toxemias and eclampsias are those that do not present kidney symptoms or signs until the last moment, and these toxemias are due primarily to disturbances of other organs than the kidneys.

If the kidneys were previously healthy, i. e., if an insidious chronic interstitial nephritis were not present, a nephritis due to pregnancy should be quickly recognized by the albumin in the urine. Therefore, an examination for albumin and casts is usually sufficient to show whether the kidneys are in primary trouble or not. On the other hand, to determine whether liver disturbance or other toxemias are present, Foulkrod urges that it is necessary not only to determine the amount of nitrogen in the twenty-four hours' urine, but the sources of this nitrogen; how much is urea nitrogen, how much ammonia nitrogen, and how much is purin nitrogen. If, in a pregnant patient who shows disturbances that denote toxemia, the total amount of urine output is greatly decreased and the nitrogen is also decreased, the kidneys may be at fault. If the liver is much disturbed the relation of the urea nitrogen to the ammonia nitrogen is changed, the urea nitrogen being decreased and the ammonia nitrogen increased. If such urinary findings persist, viz., if there is a gradually increased amount of ammonia nitrogen and a gradually decreased amount of urea nitrogen, it shows that there is serious liver disturbance, and Foulkrod advises the induction of labor irrespective of albumin and casts. When there is pernicious vomiting in pregnancy the same changes in the nitrogen output of the urine may take place, and if an increased amount of food can not be in some manner retained, or if retained the ammonia nitrogen output is still high, the pregnancy should not be allowed to go on.

ILLUMINATING GAS POISONING

Dr. Glenn I. Jones, in the *American Journal of the Medical Sciences*, January, 1909, after discussing the chemistry and symptomatology of the condition, says that the prognosis is based on "the duration of exposure; degree of coma; condition of the pulse, respiration and temperature; condition of lungs; condition of blood; and the presence of cutaneous blebs." If the coma is prolonged forty-eight hours or more the prognosis is bad. If there is edema the prognosis is bad. If the inhalation of the illuminating gas has endured but a short time, response to treatment is rapid. Jones states that all cases which develop cutaneous blebs end fatally.

The treatment of the patient should be plenty of fresh air; the tongue should be drawn forward, and, if respiration is failing artificial respiration should be begun. Venesection should be done from one arm, and from "a pint to a pint and a half of blood should be removed," and simultaneously a quart of physiologic saline solution should be transfused into the median basilic or cephalic vein of the opposite arm. Two hours later, if there is not sufficient improvement, venesection may be done again. Saline solutions should be given subcutaneously every two hours in quantities of one pint. Or perhaps better the saline should be given by the colon by the continuous method. Jones believes that these saline solutions "diminish toxemia, lessen the tendency to edema of the lungs, increase the affinity of the red cells for oxygen, and stimulate the circulatory system."

As soon as possible after the patient has been discovered Jones advises the hypodermatic injection of 2 c.c. (30 minims) of ether, 1/100 of a grain of atropin, and 2 c.c. (30 minims) of suprarenalin solution (1 to 1000). He does not believe nitroglycerin or other vasodilators are indicated, but that vasoconstriction is what is needed. Dry heat should be applied to the body to prevent the loss of that necessity of life.

Jones believes that while the venesection and injections of saline are being done an assistant should pass the stomach tube and wash out the stomach with a solution of potassium permanganate and then introduce into the stomach a solution containing 90 grams (3 ounces) of magnesium sulphate. If at any time the respiration or circulation fails, artificial respiration should be done again and circulatory stimulants again administered.

Jones does not believe that direct transfusion of blood is of any more benefit than the saline transfusions.

If the patient survives, the urine should be watched daily for some time that disturbances of the kidneys may be immediately noted.

Jones does not believe that inhalations of oxygen have any more value than ordinary air.

In all serious conditions of shock, coma and collapse, while everything that ought to be done should be done, there is a constant tendency to do too much, especially with drugs hypodermatically. Jones does not caution against the over-use of atropin or suprarenal preparations, but simply states that the suprarenalin should be repeated when indicated. If the suprarenal solution is injected hypodermatically the blood will acquire the vasoconstricting material slowly and continuously for a long time. Therefore it would be inadvisable to inject a suprarenal solution too frequently, especially as the dose he first advises, 2 c.c. of a 1 to 1000 suprarenal solution, is very large, in fact, large enough for serious consequences if the blood acquired it too rapidly.

He also does not state how often the ether should be administered, and it would seem that the secondary effect of ether would be that of a vasodilator, although the primary effect is quick and immediate stimulation. In other words, after the attempt to quicken the circulation or awaken a patient by the stimulation of ether hypodermatically it would seem inadvisable to repeat it frequently.

Also 1/100 of a grain of atropin hypodermatically should not be repeated frequently, certainly not for a number of hours.

It is not clear, if there is circulatory failure, why the hypodermatic use of strychnin is not advised.

As a circulatory and cerebral stimulant caffein should be considered, and also the hypodermatic use of a saturated solution of camphor in sterilized olive oil.

Irrigation of the Bowels with Red Wine.—F. Houssay for some time has been lauding the advantages of lavage of the intestines with heated red wine (40 C.) in infantile diarrhea and in the *Archives de Médecine des Enfants*, April and November, 1908, xi, he cites some typical examples to demonstrate the soothing, cleansing and healing influence of this lavage. It is especially useful in mucomembranous enteritis, and general convulsions do not contraindicate this treatment. He practices in a wine-growing district (Loir-et-Cher) in France, and ascribes the action to the alcohol, tannin and potassium salts naturally in the wine. The wine must be fresh, with not more than 7 or 8 per cent. of alcohol, and he uses one liter for a lavage, repeated two or three times the first day, two liters on the following days, continuing until the stools return to normal. It is important to supervise carefully the regular and ample outflow of the fluid. The reservoir is raised about three feet above the level of the anus, and he uses a two-way cannula. None of the wine is to be retained, the aim being merely irrigation of the intestines, not retention of an enema.

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EXPERIMENTAL STUDIES ON IMMUNITY IN CANCER

We are all so acutely concerned with the efforts that are being made to learn something concerning the power of the animal organism to protect itself, and possibly to confer immunity against malignant growths, that there will undoubtedly be general interest in the discussions and articles by which the German investigators have recently tried to gather up the loose ends of the subject and to take inventory of our actual achievements and knowledge of the problem. A symposium on cancer problems at the last meeting of the German Pathological Society in Kiel,[1] together with the animated discussion that followed, serves to give a good insight into the views now held by German pathologists, while Anton Sticker, one of the active investigators of transplantable tumors, has recently published a terse summary of the existing situation concerning "the immunity and spontaneous healing of cancer according to the results of the modern experimental investigations."[2]

Sticker emphasizes the widespread existence of a natural immunity to tumors, which is shown by such facts as the following: Tumors arising spontaneously in animals can never be transplanted into animals of any other species, and only a small proportion of malignant tumors can be transplanted even into animals of the same species. Metchnikoff was unable to transplant human tumors to anthropoid apes, while Sticker has made over four hundred attempts to transplant human tumors to various domestic and laboratory animals without success. Even with the most readily transplanted tumors, one seldom obtains 100 per cent. of takes, for a larger or smaller number of animals will be found to resist successfully the implanted tumor cells. Sometimes a special strain of a given species may be immune to a tumor which readily attacks other strains — for example, mouse carcinomas have been found which could not be transplanted to mice raised in Berlin, although readily growing in Norwegian mice. As yet we have no understanding of the underlying principles of this natural immunity.

Artificial immunity against the transplantable tumors of animals has been secured by various means. If an animal recovers spontaneously from an inoculated tumor, which frequently happens, this animal will be found immune to subsequent inoculations, and in at least some cases its blood will protect other animals if injected before or soon after they are inoculated; occasionally this passive immunization has been found able to cause retrogression of tumors that were already growing actively. Animals have also been rendered actively immune to tumors by previous injection of tumor cells directly into the veins, by which route no tumors are ever produced; while, in the case of transplantable mouse cancer, immunity has been secured by injection of mouse embryos, mouse liver, mouse testicle, benign mouse tumors, and even by injection of normal mouse blood. On the other hand, attempts to secure active immunity by injection of cells killed in various ways seem to have been generally unsuccessful.

At the meeting of the German pathologists the warmest discussion arose over the validity of Ehrlich's views concerning that form of immunity which he has designated as *athreptic*. The main facts and the history of this subject are, briefly, as follows: If a tumor is implanted into an animal in several places at one time it is common for several or all of the inoculated samples to take root and grow; but if a single tumor has been inoculated and has begun to grow vigorously a second inoculation will seldom take. If an implantation tumor is extirpated, however, the animal is now susceptible to a new implantation even if made the same day as the resection is performed, although if the growing tumor is only partially removed it is still impossible to cause new implantation tumors. In the case of mouse tumors it makes no difference whether or not the tumors used for the first and second implantation are the same, for the presence of rapidly-growing carcinoma will prevent successful inoculation with a sarcoma, and conversely; but Sticker has found that a spindle-cell sarcoma growth in a dog did not prevent successful inoculation with a round-cell sarcoma. Ehrlich's explanation of this phenomenon is as follows: The first rapidly growing tumor attracts to itself so strongly the necessary nutritive substances that the cells which are implanted later, being at first very poorly supplied with nourishment, are unable to secure enough food and either perish or multiply very slowly. Consequently this form of immunity is best seen when the first tumor is growing rapidly, and slowly-growing tumors may merely cause the second implantation to grow somewhat more slowly than a primary implantation would.

This hypothesis of athreptic or exhaustive immunity reminds one of the primitive hypothesis of bacterial immunity advanced by Pasteur, namely, that after infection the immunity to subsequent infection with the same organism is due to the fact that all nutrient material specific for this organism has been used up during the first infection. A number of investigators have obtained results in harmony with this athreptic immunity theory, among the earliest observations being

1. Verhandl. d. deutsch. pathol. Geselsch., 1908, Zwölfte Tagung.
2. Ztschr. f. Krebsforschung, 1908, vii, 55.

those made in this country by L. Loeb and M. Herzog; but a number of the European workers have failed to secure resistance to a second implantation. These failures are ascribed by the Ehrlich school to the use of tumors which were not rapidly growing, in which the athrepsia was not strikingly exhibited. As yet, however, the results have not been conclusive or unanimous enough to permit one to decide either the soundness of the explanatory hypothesis or the universality of the phenomenon, not to mention the significance of athreptic immunity as observed in mice and dogs for our understanding of the pathology of human cancer.

EDUCATION AND THE FAMILY

"The School and the Family" is the title of a recent article by Professor Cattell,[1] in which he discusses the subject of the decrease of the birth rate in all civilized countries. He quotes the familiar statistics which seem to show that France lost about 20,000 in population last year, and suggests the possibility that the future history of the human race will be shorter than its past history, and that its extinction will be due to the gradual lowering of the birth rate as civilization advances.

Professor Cattell has been making some interesting observations for himself. A census of twenty-two apartment houses in New York City, for instance, shows that these contain 485 families and just fifty-four children—one child to every nine families. Here is the matter from another viewpoint: "In eighty-one divorce cases tried in a single month in a New York City court—divorces have trebled since 1870—the 162 married persons had among them fifty-two children." Doubtless it is intended by this to convey the idea that, while the apartment houses may represent such utterly artificial conditions as not to be worth citing, the divorce court records probably represent a pretty good average of the upper three-fourths of the population at least. He confesses that "these are extreme cases; but among the educated and well-to-do classes the number of children does not nearly suffice to continue the race. The Harvard graduate has on the average seven-tenths of a son, the Vassar graduate has one-half of a daughter."

While the cause of this lowered birth rate is ordinarily attributed to preventive measures consequent on selfishness and love of ease, the Columbia psychologist considers it largely a consequence of actual loss of reproductive power from overeducation. He states emphatically that it is due to the substitution of the school for the home as the chief educational institution. We are making people sophisticated and obliterating their natural instincts by rationalizing them. In his opinion, girls are more injured than boys, and many women are made incapable of bearing children from overeducation, while one in four can not now nurse her children. The following expression is epigrammatically startling: "It is probably not an exaggeration to say that to the average cost of each girl's education through the high school must be added one unborn child."

It is clear that Professor Cattell does not cherish unqualifiedly the high idea of the value of our school and collegiate education that is common. He says: "In any case, the residuum of knowledge surviving the eight years of elementary school is pitifully small;" and again: "One of the most persistent errors of our school methods is the teaching of a child at a certain age, with great labor and at the production of much stupidity, what could be learned easily and with pleasure a couple of years later. It is possible to teach an infant to walk two months before the body is ready, but bow-legs are likely to be the only pronounced result." He is also severe in his denunciation of the present system which has placed the teaching of children, even up to the age of 16, so entirely in the hands of unmarried females, that probably not more than one in fifteen of our teachers is a man. In one normal school in California the graduating class contained 272 women and just one man. The difference between the American and the German system in this matter will be realized from the fact that there two-thirds of the teachers in corresponding schools are men.

Of course not all that Professor Cattell says will be acceptable, either to educators, or to those occupied with social questions generally, or with education from a less special standpoint; but what he has to say is extremely suggestive. There certainly is a tendency toward sophistication and the obliteration of instincts that is likely to prove serious for the human race if it is allowed to continue. He says very well: "Perhaps the principal danger to our civilization is the checking of instincts by rationalistic considerations." All this is of interest to us as physicians, not as a mere academic problem, but rather in serious relation to our daily work. We have more opportunity than any other class of men for influencing people in the matter of the natural instincts and their proper conservation and exercise. Have we perhaps been too much influenced by some of the old Malthusian doctrines, that if the race were not checked the limitations of the food supply would check it? Professor Cattell answers, "But Malthus was a false prophet; thanks to the application of science the means of subsistence have increased more rapidly than the population. If the density of the population in the United States were equal to that of Great Britain, all the people in the world could live here in comfort."

Professor Cattell's remedy deserves mention for its startling character. It is that "the teacher should be the family, and so far as may be the scholar should be the family." He draws a picture of a school in the country, the house a model of simple beauty, either containing, or adjacent to, the home of the teachers, and surrounded by gardens, orchards and barns. It should

1. Popular Science Monthly, January, 1909.

be so constructed, esthetically and hygienically, as to be an object lesson both for the pupils and for the families around. The work should consist of two hours a day for study and two hours more for handicraft work or other labor. The "tricks of reading, writing and reckoning" should be taught by the master and mistress and their older children, with the help of others who are able. All should be encouraged to go as far as they care to along the paths of letters and science. The schoolhouse should be a sort of village club, used for purposes of social intercourse and recreation, as well as for instruction.

"Such a school should be supported mainly by the work of those whom it serves; perhaps no taxation would be required; in any case the money needed for the master and mistress and their children to live in quiet elegance would not be much." The master and mistress would have ample time. "The wife could be spared when higher duties (childbearing?) demand it," and the man could devote himself to the completion of some pressing work, or to editing the local journal or practicing as physician, pastor, lawyer, or w it not. Some industrial work should be connected with the school and apprentices would be trained who could carry expert skill to other neighborhoods." "Five thousand families," says Professor Cattell, "continually increasing in numbers, engaged in learning and in teaching, would give to this country a true democratic aristocracy."

In short, as a corrective for all the evils resulting from the modern supersession of the family by the school, Professor Cattell suggests a system of localized education, individual and industrial, in principle essentially resembling that which J. J. Walsh has essayed to demonstrate as prevailing in Europe during the thirteenth century.[2] Alas for its improbability! Before such a plan could materialize it would be necessary to reverse the entire mental current of twentieth century people.

THE PATHOGENESIS OF THE EYE SIGNS OF EXOPHTHALMIC GOITER

Few anatomic structures are enshrouded in more obscurity than certain unstriped muscles external to the eye. They have, however, attained recently a new importance since the discovery of their relation to the symptoms of exophthalmic goiter.

In 1858-59 Heinrich Müller described very briefly three groups of plain muscle fibers—one bridging over the infraorbital fissure, and one in each eyelid running vertically from the fornices of the conjunctiva to the superior and inferior tarsal plates respectively. Sappey's rather indefinite description of two bands of plain muscle lying one on either side of the eyeball, and termed by him "internal and external orbital muscles," has failed of confirmation at the hands of other competent anatomists.[1] The plain muscles of the lids, now known as the superior and inferior tarsal muscles, together with the M. infraorbitalis, constitute the so-called muscle of Müller, and it has been theoretically advanced that a spastic condition of these muscles causes the exophthalmos of exophthalmic goiter. Their obvious insufficiency, both from their size and position, to produce exophthalmos, together with the inadequacy of the many other theories advanced, led Landström[2] to seek the immediate cause of exophthalmos in a careful histologic study of the orbital contents. He removed intact by subperiosteal dissection the contents of several orbits, together with the lids and septum orbitale, and sectioned them serially in various planes. His preparations revealed a well-developed cylinder of plain muscle arising from the septum orbitale anteriorly and inserted just posterior to the equator of the ball. The result of his work he summarizes thus:

"The bulbus oculi enclosed within a connective tissue capsule and surrounded by a pad of fat is suspended within the orbit anteriorly by a cylinder-shaped plain muscle running from the septum orbitale to the equator of the bulbus and posteriorly by the recti muscles." The muscle is best developed mesially and least developed superiorly, corresponding to the position of the levator palpebræ superioris.

The ocular manifestations of exophthalmic goiter are so analogous to the effects of cervical sympathetic stimulation that many competent clinicians support this origin of the signs.

Bearing in mind the attachments of the plain muscle described by Landström to the septum orbitale and eyeball, the eye signs of exophthalmic goiter become readily explicable. A spastic condition of the muscle would have as its first effect a widening of the lid slit (Stellwag's sign). The free and easy movement of the lids being thus interfered with, an incoordination of the movements of ball and lids would follow as a natural consequence (von Graefe's sign).

The superior and inferior tarsal muscles running vertically in the lids doubtless play a considerable rôle in the production of the two phenomena just described. Exophthalmos is produced when the hypertonicity of the plain muscle — the opponens recti — overcomes the tonus of its antagonists—the recti muscles. Convergence of the eye increases the distance between the origin and insertion of the mesial portion of the cone of plain muscle, which is consequently well developed to meet this oft-repeated act. A spastic condition of the plain muscle would tend to overcome the tonus of its antagonist—the internal rectus—and a break in convergence would result (Moebius' sign).

2. Walsh, J. J.: The Thirteenth, the Greatest of Centuries.

1. Merkel and Kallius: Graefe-Saemisch Handbuch der Augenheilkunde.
2. Landström, John: Ueber Morbus Basedowii. Thesis, Stockholm, 1907.

Landström's histologic work confirms the important observations of MacCallum and Cornell.[3] These authors removed the roof of the orbit and orbital fat in dogs and on electrically stimulating the cervical sympathetic produced great exophthalmos and observed peristaltic waves passing backward throughout the tissue surrounding the eyeball. By dissection and histologic study they were able to demonstrate the presence of plain muscle fibers forming a smooth conical mantle about the eye continuous anteriorly with the musculature of the lids and forming abundant attachments about the margin of the orbit, passing backward thence to end about the foramen through which the optic nerve enters the orbit.

INDUSTRIAL ACCIDENTS

The casualties occurring chiefly among wage-earners engaged in industrial pursuits are becoming the subject of increasing interest and concern in this country. The accident rate of the United States, as we remarked a few weeks ago,[1] is far above that of any other. It can hardly be a matter of indifference to a nation that the loss of life and the maiming in its industrial army is double or treble that of its principal economic rivals. "The ever-increasing legislation for the protection of life and health in industry and the demand for more stringent employers' liability legislation emphasize the need of a more careful consideration of the facts by selected industries than has thus far been possible." With these words the eminent statistician, Frederick L. Hoffman, prefaces an important discussion of accident frequency in the United States in a recent government publication.[2]

The scope of this discussion does not include minute analysis of the causes of accidents, the degree of injury or the methods of prevention. Rather is the present monograph a clearing of the ground and a laying of the foundation for future studies in this important field. There are few readers of Mr. Hoffman's carefully prepared report who will not agree with his conservative and temperately stated conclusions: "The facts presented in this article warrant the conclusion that the casualty risk in American industries is a most serious one, toward the reduction of which every effort should be made. At least a more earnest effort should be made to profit by the industrial methods of European countries. Granting that the underlying conditions are often quite different and that many of our industrial accidents are the result of ignorance, reckless indifference, or carelessness, the fact remains that an immense amount of human life is wasted and a vast amount of injury is done to health and strength with resulting physical impairment, which has a very considerable economic value to the nation as a whole."

Hoffmann cites for illustration the accident liability of employés in coal mines in the United States, the average annual rate being 3.10 per 1,000 for the period 1897-1906. If this were reduced to 1.29 per 1,000, the average rate in the United Kingdom for the same period, the annual saving in human lives would be 915. If the rate of casualties of railway employés in this country could be reduced from 2.50 per 1,000, which was the average annual rate for 1897-1906, to 0.98 per 1,000, the average for the German Empire for the same period, 1,735 valuable human lives would be saved annually. On a conservative estimate the total mortality from accidents in the United States among adult male wage-earners is between 30,000 and 35,000. At least one-third and perhaps one-half of this fatality could be prevented by intelligent and rational methods of factory inspection, legislation and control. We are told in addition that during the period in question there were approximately not much less than 2,000,000 non-fatal accidents. It is plain that these not only involve a vast amount of human suffering and sorrow, but must materially curtail the normal longevity of the victims.

Some accidents are in the general sense of the term unavoidable and must be laid to the account of those natural forces which have warred against man from the beginning. Others, both minor industrial accidents and great catastrophes, are the fruit of carelessness or neglect. The recent construction-crib disaster in Chicago by which perhaps as many as seventy lives were lost does not seem to have been one of the unavoidable class which no exercise of human prudence or skill could have sufficed to avert. On the contrary, it has not been clearly shown that all possible precautions against explosions or fire or their results were in force on the doomed crib. The impulse to "fix responsibility," although in some respects elementary, is probably another sign of awakened interest in the problem of prevention. Industrial accidents are not the necessary and inevitable accompaniment of intense economic activity; they are the mark of a hasty and wasteful method of getting results, and are in large part so clearly preventable that future historians will doubtless wonder that the great social and economic waste that they entail was allowed to continue so long unchecked.

THE EXTINCTION OF TUBERCULOSIS

A distinguished physician has prophesied the early disappearance of tuberculosis as a scourge of humanity. A great deal of oversanguine optimism and comparatively few careful deductions from facts on this subject have appeared of late in medical literature. The progress already made in checking the mortality from tuberculosis has been encouraging indeed; but whether it warrants the confident expectation that tuberculosis will soon become extinct among the human race is a question which conservative minds can not yet answer with a ready affirmative. The paper by Drs. Willson and Rosen-

3. MacCallum, W. G., and Cornell, W. B.: The Mechanism of Exophthalmos, Med. News, Oct. 15, 1904.

1. Jan. 9, 1909, p. 139.

2. U. S. Dept. Commerce and Labor, Bureau of Labor, Bull. 78.

berger[1] in the present issue of THE JOURNAL is perhaps a timely as well as a sobering suggestion to some enthusiasts, for we are, as they say, only at the beginning of the crusade against tuberculosis. According to some pathologists, almost every adult is a tuberculosis carrier, and the possibilities of latent tuberculosis becoming virulent and infectious under favoring conditions can not be accurately estimated. When we consider how widely disseminated the infection is throughout the animal kingdom, and how universal in human civilized communities, it becomes evident that, before we can dream of its final extinction in man, we must also exterminate it among animals, and the whole world must join in the warfare against it. The universal extermination of tuberculosis will evidently prove a gigantic task; but the limitation of its ravages by every possible means is none the less an imperative and a profitable duty. Isolation and disinfection are measures of indisputable, though limited, usefulness; but for the present reliance seems to be most safely placed on the possibility of building up the resistance of the human body and the creation of an environment unfavorable to the germs of the disease by better methods of living, more sunlight, and better ventilation. Possibly the future may give us some means of producing immunity other than that habituation to the disease and its fostering conditions which is said to have rendered the Jewish race to a certain extent immune; and if so we may yet hope to be delivered from the "great white plague."

THE SPLEEN AND THE METABOLISM OF IRON

The function of the spleen has long been a riddle puzzling alike to physiologists and pathologists. It is known that it is an organ of importance in connection with the formation of the blood and also one in which dying red corpuscles are destroyed. Surgeons have removed the spleen in repeated instances without injury to the general health of the patients, a fact which makes it seem certain that the functions of this organ can be taken over by other parts of the body when necessity arises. Recently new light seems to have been thrown on the function of the spleen by certain researches of Grossenbacher.† This observer compared the iron metabolism in normal dogs with that in animals of the same litter from which the spleen had been removed. In the splenectomized dogs he found the daily excretion of iron larger than in normal dogs. This larger iron output was found not only when the animal was fed on a protein diet but also in the fasting state; it is not due, therefore, to interference with the absorption of iron from the food. The largest daily excretion of iron in a normal animal amounted to 11.2 milligrams, while in splenectomized animals it was as much as 29.2 milligrams. The lowest daily output in animals that had been operated on amounted to 18 milligrams. The increase in the excretion of iron continued for at least ten weeks after the removal of the spleen, showing that the compensatory activities of other organs had not by that time been sufficient to prevent it. It seems probable, therefore, that Grossenbacher is correct in his view that the spleen is an organ definitely concerned in the metabolism of iron; it is possible that its main function consists in retaining in the organism iron which otherwise would be excreted.

1. Page 449.
† Zentralbl. f. Physiol., 1908, xxii.

Medical News

CALIFORNIA

Itinerant Sanitary Inspection.—A traveling car illustrating sanitary methods of preventing disease is soon to start on a tour around the state, in charge of Surgeon W. Colby Rucker, P. H. & M.-H. Service. In this car is installed an exhibit showing how typhoid fever, tuberculosis and other diseases may be prevented.

Pasadena Will Report Infectious Diseases.—The mayor and council of Pasadena have recently passed resolutions in favor of more rigid enforcement of the ordinance compelling the report of infectious diseases, including tuberculosis, and have also made provision for the fumigation of rooms and houses made vacant by infected or tuberculous patients at the expense of the city. The medical society of Pasadena heartily supports the proposition.

Hospital Notes.—A dispensary was opened January 18, at the Telegraph Hill Neighborhood Association, under the direction of the San Francisco Association for the Study and Prevention of Tuberculosis.——The Okabe Hospital Association has been incorporated in Oakland, with a capital stock of $10,000, to construct a hospital for the benefit of the Japanese residents of the community.——The Peninsula Hospital Company has selected a site for its new building on the Embarcadero Road, South Palo Alto.——Highland Park Sanitarium, Los Angeles, built by Mrs. V. E. Tagliaferro, was formally opened December 6.

COLORADO

Memorial Window.—A memorial window in memory of the late Dr. S. Edwin Solly has been placed in St. Stephens Church, Colorado Springs.

Society Meetings.—At the annual meeting of Denver County Medical Society, Dr. Edmund W. Stevens was elected president, and Dr. Charles B. Van Zant, vice-president.——Fremont County Medical Society, at its annual meeting, held in Florence, January 4, elected Dr. George D. Cummings, Florence, president; Dr. Augustus T. Clark, Canon City, vice-president; Dr. Goodlow, Canon City, secretary, and Dr. James W. Rambo, Florence, delegate to the state medical society.——Lake County Medical Society, at its annual meeting held in Leadville, December 31, elected Dr. Henry A. Calkins, president; Dr. Benjamin F. Griffith, vice-president and delegate to the state medical society, and Dr. E. T. Boyd, secretary and alternate delegate, all of Leadville.——Weld County Medical Society has been incorporated by Dr. Charles B. Dyde, Ella A. Mead, and Charles A. Ringle, all of Greeley.

ILLINOIS

The Tuberculosis Institute.—The Chicago Tuberculosis Institute elected the following officers at its annual meeting: Dr. Henry B. Favill, president; Drs. Frank Billings and Robert H. Babcock, vice-president; David B. Forgan, treasurer, and Sherman Kingsley, secretary. Traveling tuberculosis exhibits are the latest educational propaganda announcements of the institute.

Personal.—Dr. Max F. Clausius, formerly of Jefferson Park, has been appointed physician of the Siletz Agency, Siletz, Ore. ——Dr. Spencer S. Fuller, Paxton, sails for Vienna via the Mediterranean, February 9.——Dr. William D. Hohman has been elected president and Dr. Francis O. Lowe, vice-president, and Dr. H. Nelson Heflin, secretary of the staff of St. Francis' Hospital, Kewanee.

Tuberculosis Deaths.—Of the 84 deaths reported from tuberculosis in Chicago last week, only 34 were reported while living, 5 were reported after death; 1 on the day of death; 2 each, one and two days before death; 1, three days before death; 3, four days before death; 1, seven days before death; 5, from one to two weeks before death; 4, from two to four weeks before death; 4, from one to two months before death; 4, from two to four months before death, and 2, from four to six months before death.

Tuberculosis Sanatorium Opened.—The new Chicago-Winfield Tuberculosis Sanatorium, the ground and buildings for which were presented by Charles A. Stonehill to the Baron Hirsch Woman's Club, the Jewish Consumptive Relief Society, and Willing Workers, will be opened February 7. The institution will be in charge of these societies but will be nonsectarian. Several cottages, each accommodating ten patients, are soon to be built. The endowment at present amounts to about $12,000 a year, and Dr. Theodore B. Sachs, of the Chicago Tuberculosis Institute, will be chief of staff.

INDIANA

Hospital to be Closed.—The board of managers of the Eleanor Hospital for Children, Indianapolis, has decided to close the present building on account of its inadequacy and insanitary condition.

Atnicted Physicians.—Dr. Thomas Macer, Evansville, is reported to be seriously ill with septicemia.——Dr. John L. Morris, of the Columbus Sanatorium, is reported to have been adjudged insane.——Dr. William H. Wischart, Colfax, is ill with septicemia.

Society Member Suspended.—At the session of the Vigo County Medical Society, held January 12, in Terre Haute, it is reported that Dr. James E. Donnelly was suspended from membership on account of violation of an amendment to the by-laws of the society, prohibiting lodge or contract practice.

Magazines Merge.—The *Indiana Medical Journal* and the *Central States Medical Monitor* have merged, and will hereafter be published under the name of the *Indianapolis Medical Journal*. Dr. Samuel E. Earp and Alembert W. Brayton are editors-in-chief of the new publication. The first issue will appear this month.

Medical Society News.—At the annual meeting of the Indianapolis Medical Society, held January 5, the following officers were elected: President, Dr. Theodore Potter; vice-president, Dr. Walter N. Sharp; secretary-treasurer, Dr. Roscoe H. Ritter; delegates to the state medical association, Drs. Allison Maxwell, Albert C. Kimberlin and Edmund D. Clark, and alternates, Drs. Thomas B. Eastman, William T. S. Dodds and Charles R. Sowder.——The Fort Wayne Medical Society and Blackford Law Club are arranging for occasional joint meetings for purposes of mutual instruction and profit.

Personal.—Drs. Charles E. Barnett, Fort Wayne, and Charles C. Terry and family, South Bend, have returned from abroad.——Drs. Oscar S. Deitch, Indianapolis, Jeremiah A. Swailes, Acton, R. Samuel Records, Lawrence, and William B. McDonald, New Augusta, have been appointed deputy coroners of Marion county.——Dr. T. J. Toner, Gary, has been appointed local surgeon for the Chicago, Lake Shore and South Bend Railway.——Dr. George W. Anglin, Warsaw, has been appointed physician of Kosciusko county, vice Dr. Tiffin J. Shackelford.——Dr. Clarence G. Rea has been made secretary of the Muncie board of health.——Dr. William P. Richards, New Albany, has succeeded Dr. William L. Starr as coroner of Floyd county.

IOWA

Licenses Refused.—By order of the State Board of Health, issued January 22, licenses for the practice of medicine are said to have been refused Drs. J. H. Kern, Runnells, and Peter R. Rahl, Fort Dodge.

Personal.—Dr. John S. S. Chambers, Davenport, is reported to be seriously ill with appendicitis.——Dr. and Mrs. Lawrence W. Littig, Iowa City, sailed from New York for Europe January 6.——Dr. Leonard J. B. Bowman, Manchester, has been appointed superintendent of schools of Greeley.——Dr. Joseph A. Valenta, Iowa City, has been appointed a member of the legislative committee for the Iowa Health Officers' Association.——Dr. D. S. Byers, New Hampton, is reported to have been committed to the State Hospital for the Insane, Independence.

Medical Society Meetings.—Scott County Medical Society, at its annual meeting, January 17, in Davenport, elected Dr. William H. Rendleman, president; Dr. Gordon F. Harkness, vice-president; Dr. John V. Littig, secretary-treasurer, and Dr. Edward F. Strohbehn, delegate to the state medical society, all of Davenport.——At the annual meeting of Polk County Medical Society, held in Des Moines January 5, Dr. Andrew R. Amos was elected president; Dr. Robert L. Parker, vice-president; Dr. James W. Osborn, secretary, and Dr. Eli Grimes, treasurer.——At the annual meeting of the Medical and Surgical Staff of Mercy Hospital, Council Bluffs, January 7, Dr. B. A. McDermott was elected president; Dr. John F. Sprink, vice-president, and Dr. James M. Barstow, secretary (re-elected).

KANSAS

Personal.—Dr. Edwin J. Moffitt, Manhattan, has been appointed local surgeon for the Rock Island System and district surgeon for the Union Pacific System.——Dr. John C. Brown has resigned as president of the Wichita board of health.

District Medical Association Formed.—At a meeting recently held in Great Bend, physicians of Pawnee, Edwards, Barton and Rush counties formed a district association. The temporary secretary was instructed to apply to the state medical society for affiliation under the standard plan.

Antituberculosis Association.—At a meeting held in the House of Representatives, Topeka, Dec. 3, 1908, presided over by the governor of the state, the Kansas Branch of the National Association for the Study and Prevention of Tuberculosis was organized, with the following officers: Dr. Samuel J. Crumbine, Topeka, president; Chancellor Frank Strong, Lawrence, and Dr. Harriet Comstock, Hutchinson, vice-presidents; Dr. Charles B. Van Horn, Topeka, secretary, and Dr. Lewis H. Munn, Topeka, treasurer.

Society Meetings.—Douglas County Medical Society, at its annual meeting January 12, elected Dr. E. James Blair, Lawrence, president; Dr. George McL. Liston, Baldwin, vice-president; Dr. Harry L. Chambers, Lawrence, secretary; and Dr. James Naismith, Lawrence, treasurer.——Reno County Medical Society, at its annual meeting in Hutchinson, January 8, elected Dr. William F. Schoor, Hutchinson, president; Dr. Hazen H. Miner, Partridge, vice-president; Dr. M. C. Roberts, Hutchinson, secretary; Dr. Harry H. Heylmun, Hutchinson, treasurer; Dr. Frederick O. Forney, Hutchinson, censor, and Dr. Hunter J. Duvall, Hutchinson, delegate to the state society.——Wyandotte County Medical Society, at its annual meeting January 12, in Kansas City, elected Dr. Richard C. Lowman, president; Dr. William F. Fairbanks, vice-president; and Dr. Anna K. Masterson, secretary-treasurer, all of Kansas City.——At the annual meeting of Clay County Medical Society, held in Clay Center, January 20, the following officers were elected: Dr. Xenophon Olsen, Clay Center, president; Dr. Charles C. Stillman, Morganville, vice-president; Dr. Benjamin F. Morgan, Clay Center, secretary; Dr. Samuel E. Reynolds, Clay Center, treasurer and critic, and Drs. Benjamin F. Morgan, Xenophon Olsen and Daniel P. Cook, all of Clay Center, censors.——Atchison County Medical Society, at its annual meeting in Atchison January 13, elected Dr. Arthur B. Chase, Atchison, president; Dr. Peter R. Moore, Effingham, vice-president; Dr. E. B. Knerr, Atchison, secretary; Dr. Edw. P. Pitts, Atchison, treasurer; Dr. Judson C. Cole, Huron, censor, and Dr. Edwin T. Shelly, Atchison, delegate to state medical society.——At the fifth annual meeting and banquet of the Allen County Medical Society, held in Iola, Dec. 16, 1908, Dr. Charles T. Halm, La Harpe, was elected president; Dr. Robert O. Christian, Iola, vice-president; Dr. Frank H. Martin, Iola, treasurer; Dr. J. W. Moore, Iola, censor; Dr. Guilford C. Glynn, Iola, delegate to the state society, and Dr. Paul S. Mitchell, Iola, alternate.——At the annual meeting of Shawnee County Medical Society, held in Topeka, Dr. William E. McVey was elected president; Dr. Charles F. Menninger, vice-president; Dr. John B. Tower, secretary; Dr. William A. Wehe, treasurer, and Dr. John E. Minney, censor, all of Topeka.——Washington County Medical Association, at its annual meeting, held in Washington, Dec. 23, 1908, elected Dr. Matthaeus H. Horn, Morrowville, president; Dr. George E. Tooley, Washington, vice-president, and Dr. William M. Earnest, Washington, secretary.——At the first annual meeting of Finney County Medical Society, held in Garden City, Dr. Andrew Sabine was elected president; Dr. Albert L. Brown, vice-president, and Dr. Piper, secretary-treasurer.

KENTUCKY

New County Hospital.—The Woodford County Hospital, Versailles, has been erected at a cost of $15,000, and given to Woodford county by Mrs. Lucy Alexander in memory of her husband.

Society Meeting.—At the annual meeting of the Kentucky Midland Medical Society, held in Lexington, January 14, the following officers were elected: Dr. Benjamin F. Van Meter, Lexington, president; Dr. Frank M. Beard, Shelbyville, vice-president, and Dr. George P. Sprague, Lexington, secretary-treasurer (re-elected).

Personal.—Dr. Joshua A. Sweeny, Louisville, who recently went to New York to undergo an operation for septicemia,

has entirely recovered.——Dr. Samuel N. Scott, Somerset, is said to have been adjudged insane.——Dr. P. Henry Nevitt, Stephensport, is recovering from a serious attack of typhoid fever.——Dr. James C. Carrick has been re-elected president of the board of health, and Dr. Nathan R. Simmons, health officer of Lexington.——Dr. Samuel E. Woody, Louisville, has been elected president of the Baptist Sanitarium.——Dr. John K. Wood, Bowling Green, has been appointed second assistant physician at the Central Kentucky Asylum for the Insane, Lakeland, and Dr. R. Wickliffe Wood, Dansville, second assistant physician at the Eastern Kentucky Asylum for the Insane, Lexington.——Dr. E. E. Hume, mayor of Frankfort, has retired from active practice.

Jefferson County Society Meetings.—At the annual meeting of Jefferson County Medical Society, held in Louisville, Dec. 28, 1909, the following officers were elected: Dr. Charles W. Hibbitt, Louisville, president; Drs. John W. Blanton, Meadowlawn, and Thomas K. Van Zandt, Louisville, vice-presidents; Dr. J. Rowen Morrison, Louisville, treasurer, and Dr. Benjamin F. Zimmerman, chairman of the executive committee.—At the January 27 meeting of the society the chairman of the board of trustees of the Jefferson County Medical Library made a report in which he recommended that the society take over the management of the library and place it in the hands of a board of four members. The library has more than 3,000 bound volumes and 56 medical journals are on file. The society voted to accept the recommendation, which carries with it the payment of the debt of the library board incurred in the move into its new quarters. It was also voted to employ a librarian-stenographer to care for the library and report meetings of the society and its various sections. A proposition from the secretary-editor of the *Kentucky Medical Journal*, offering to publish a monthly magazine of 48 pages devoted exclusively to the interests of the society, and of which the editor-in-chief and his collaborators are to be appointed by the society, was accepted. The society adopted a uniform constitution for all sections, which is to be referred to the sections and approved by them, and then referred back to the society for final ratification. This has a provision that any member of the society shall be eligible to join the various sections, but must be elected by a majority vote, although all members are welcome to attend any of the meetings.

MARYLAND

New Hospital.—The directors of Washington County Hospital Association have decided to erect a $60,000 hospital on property recently purchased in the suburbs of Hagerstown for $37,000.——The City of Baltimore is about to erect a new hospital building at Bayview Asylum, at an expense of $150,000, to accommodate 100 patients.

Annual Meeting of Eudowood Hospital.—The annual meeting of the Eudowood Sanatorium Tuberculosis Hospital of Maryland was held January 25. The president, Dr. Henry B. Jacobs, reported that 178 cases had been treated during the year. In addition to enlargements and improvements, two new departments have been added, the Marie Bloede Memorial Hospital and the Farm Colony. The cost of maintenance at this sanatorium is said to be lower than that of any similar institution in the country as all milk and vegetables are raised on the farm and as all patients whose condition permits are required to work. A training school for special tuberculosis nurses has been established. Discharged patients are visited at their homes, and everything is done to assist them in maintaining their health.

MASSACHUSETTS

Personal.—Dr. Bradford H. Pierce has been appointed medical inspector by the Cambridge board of health, vice Dr. Albert P. Norris, resigned.——Dr. Josiah P. Bixby has been made a member of the board of health and Dr. Charles T. O'Brien city physician of Woburn.

Hospital Notes.—The Lamont G. Burnham Memorial Building on the grounds of the Boston City Hospital, erected at a cost of $150,000, by the bequest of the man whose name it bears, has been formally opened. The new building will be used as an *x*-ray ward.——The trustees of Newton Hospital announce that efforts of the charity workers of Newton for the removal of the debt of $19,000 during the last year have resulted in a subscription fund of $33,700.

Lectures on Tumors.—A course of lectures on tumors is to be given under the auspices of the Cancer Commission of Harvard University in the Amphitheater of Building D, Harvard Medical School, Longwood avenue, Boston, on Thursday afternoons, at 5 p. m., beginning February 4. The lecturers and topics are as follows:

February 4, Dr. Ernest E. Tyzzer, Boston, "The Bearing of the Experimental Investigation of Tumors on the Tumor Problem in General."

February 11, Dr. William T. Howard, Cleveland, Ohio, "The Regulatory Processes of Tumor Cells."

February 18, Dr. F. B. Mallory, Boston, "The Classification of Tumors."

February 25, Dr. Harvey W. Cushing, Baltimore, "The Physiologic Pathology of Intracranial Tumors."

March 4, Dr. S. B. Wolbach, Albany, "The Etiology of Tumors, Considered from Our Knowledge of Congenital Tumors and Tumors Following Repeated Injury."

March 11, Dr. F. P. Gay, Boston, "The Problem of Cancer Considered from the Standpoint of Immunity."

District Society Meeting.—At the semi-annual meeting of the Essex North District Medical Society, held in Haverhill, January 6, the following committee was appointed to assist the American Medical Association in its plan to aid those organizations asking a National Department of Public Health: Drs. Charles E. Durant and John F. Croston, Haverhill; Dr. Roy V. Baketel, Methuen, and Drs. W. H. Coon and J. Forrest Burnham, Lawrence. A committee consisting of Drs. Francis W. Anthony and John J. Prevaux, Haverhill; Dr. Warrin W. Pillsbury, Newburyport, and Drs. Timothy J. Daly and J. Forrest Burnham was appointed to assist the Auxiliary Committee on State and National Legislation of the Massachusetts Medical Society for the year. A list of advertising doctors and medical companies in the district was presented to the society, and it was voted to send the list to the American Medical Association. Dr. Silas D. Presbrey, Taunton, president of the state society, addressed the meeting on the value to the community of continual watchfulness against improper medical legislation.

Requirements for Certified Milk.—The Medical Milk Commission of Worcester has issued a pamphlet detailing the requirements for the production of certified and inspected milk. Certified milk is to be free from pus and pathogenic organisms, is to contain not more than 10,000 bacteria to the cubic centimeter; to be of neutral or slightly acid reaction; to contain not less than 3 nor more than 4 per cent. of proteids; not less than 4 nor more than 5½ per cent. of sugar; not less than 3½ nor more than 4½ per cent. of fats; to be free from preservatives, color matter, and other contamination; not to be subjected to the action of heat; to be cooled to a temperature of 45 degrees within one hour of the time of milking, and to be kept at this temperature up to the time of delivery; not to be frozen; to be delivered in sealed glass bottles, and the milker to be personally clean and neither to have been or to be in contact with any contagious disease while employed in handling the milk. Inspected milk is to be free from pus and pathogenic organisms; must contain not more than 50,000 bacteria to the cubic centimeter; is to be neutral or slightly acid in reaction; to contain not less than 13 per cent. total solids nor less than 3½ per cent. of fat; to be free from preservatives, coloring matter and other contaminations; not to have been subjected to the action of heat; to be cooled to a temperature of 50 degrees within one hour of the time of milking, and to be kept at this temperature up to the time of delivery; not to have been frozen; to be delivered in glass bottles satisfactorily sealed, and the milker to be personally clean, and neither to have nor to have come in contact with any contagious disease while employed in handling the milk.

Proposed Legislation.—A bill has been presented to the legislature providing that all persons holding themselves out by sign, business card, or otherwise as practitioners in the commonwealth of christian science, mental healing, hypnotism, and doctors of divinity, or ministers of the gospel, conducting clinics for psychologic or divine healing, and all kinds of healers or preventives of human diseases shall register their names with the State Board of Health and state their place of business and the manner in which they heal disease, and the nature of the cases that they intend to treat and practice on in their profession, on or before April 1 of each year, and shall be subject to the management and control of the said board. All persons who register in accordance with the provisions of this act shall receive a license to practice their profession of healing disease or of preventing the same, and to sign death certificates on the payment of a fee of $1 to the State Board of Health, which shall have the authority to revoke any license granted thereunder in its discretion. Any person, who not being licensed, practices or holds himself out to practice, and accepts a fee of any sort for his or her services shall, on a first conviction, be fined $25, and on a subsequent conviction be punished by fine or imprisonment, or both, at the discretion

of the court.——The first milk bill of the session provides that, "milk that is pure and unadulterated, and from which no part of the cream has been removed shall be considered to be of good standard quality within the meaning of the statute, and milk which is adulterated or to which water or any foreign substance has been added or from which the cream or any part thereof has been removed, and milk produced from cows which have been fed on the refuse from distilleries, and milk from sick or diseased cows, shall be regarded as milk not of good standard quality."

MISSOURI

State Board Meeting.—The Missouri State Board of Health, at its annual meeting, held in Jefferson City, January 6, organized and elected the following officers: President, Dr. Robert H. J. Goodier, Hannibal; vice-president, Dr. John T. Thatcher, Oregon, and secretary, Dr. James A. B. Adcock, Warrensburg.

Eddyites May Practice Without Practicing.—In a case brought in Warrensburg to test the medical practice act, in which two prominent Eddyites of Kansas City were charged with violation of the law making it an offense to practice medicine or to treat the sick for pay without a license, Judge Thurmond held that the Missouri statutes do not apply to that form of practice performed by "Christian Scientists," and that the laws of the state do not prohibit or restrict in any way their practice.

St. Louis

New Site for Hospital.—The Skin and Cancer Hospital has purchased a site on Washington and Theresa avenues for the new building, made possible through the donation of $100,000 by Mrs. Barnard. The plans are well under way.

Society Meetings.—On January 25, the St. Louis chapter of the Society for Moral and Social Prophylaxis was organized. Rev. George R. Dodson presided, and a constitution based on that of the New York society was adopted. Nomination of permanent officers will be made at the next meeting.——On January 15, at a joint meeting of physicians and lawyers, the preliminary organization of the St. Louis Medico-legal society was effected. The purpose of the society, as outlined, is to make reforms in the existing coroner system, to develop expert medical testimony; to establish an expert commission on insanity; and to excite interest in laws affecting public health and in matters of mutual interest to the two professions. Former circuit attorney, A. N. Sager, was elected temporary president, and Dr. Henry J. Scherck temporary secretary.——At the annual meeting of the ophthalmic section of the St. Louis Medical Society, January 13, the following officers were elected: Chairman, Dr. Adolph Alt; vice-chairman, Dr. Meyer Wiener; secretary, Dr. John Green, Jr.; treasurer, Dr. William H. Luedde; and editor, Dr. Lewellyn P. Williamson.——The section of internal medicine of the St. Louis Medical Society has elected Dr. Louis H. Hempelmann, chairman; Dr. Louis M. Warfield, vice-chairman; and Dr. Albert E. Taussig, secretary-treasurer.——The obstetrical section of the St. Louis Medical Society has elected Dr. Walter B. Dorsett, chairman; Dr. Oscar H. Elbrecht, vice-chairman; Dr. E. Lee Dorsett, secretary; Dr. Hugo Ehrenfest, treasurer; and Dr. Frederick J. Taussig, editor.

NEW JERSEY

Drastic Action of Hospital Directors.—The medical profession of Newark is excited over the recent action of the directors of the German Hospital in dropping three members of its staff, Drs. William F. Seidler, Marcus Seidmann and Frederick Hexhamer. These gentlemen, one of whom was secretary of the medical organization of the hospital, were not formally discharged from the service, but were discarded when the directors dissolved the medical board and established a new one. It has been admitted that the recent action was taken not on professional but on commercial grounds, as these gentlemen are said not to have aided in producing revenue for the hospital by bringing private patients to the institution for treatment.

NEW YORK

Gift to Hospital.—Announcement has been made that George Eastman, Rochester, has donated $400,000 to the Rochester City Hospital for the purpose of rebuilding the hospital and making extensive additions.

Unregistered Physician Fined.—Agnes V. Kelley, Jamestown, is said to have pleaded guilty, January 1, to the charge of practicing medicine without a license and to have been fined $100. The charge was preferred by Dr. Era M. Schofield, Jamestown, censor of the Chautauqua County Medical Society.

Albany Hospital Needs Aid.—The annual report of the Albany Hospital has just been issued, and shows that during the past year 3,044 patients were treated; of these, 726 occupied private rooms and 1,040 were in semi-private rooms. The city contributed something toward the support of those in public wards. The sum of $9,249 was received from contributors, which, although more than has ever before been given, is entirely inadequate to meet the expenses. The hospital has a floating debt of $45,090, made up in part of an unpaid balance due to the cost of erection and part of the accumulated yearly deficits.

Inspection of Factories.—The report of Dr. C. T. Graham Rogers, who was delegated to make an inspection of factories, states that the State Labor Department is seriously handicapped because the state labor law lacks provisions to regulate sanitation in factories. He urges a new code to cover deficiencies. He wants the minimum cubic air space for each person to be increased, summary powers to be given to the State Labor Department to furnish pure drinking water and sanitary plumbing, and to prevent factories being used as lodging places. He desires that the storing of foodstuffs in tenement factories be prohibited.

Insane Badly Treated.—The Commission in Lunacy, as a result of its investigation of the procedure adopted by county officials in different parts of the state in the temporary care and detention of insane persons pending their commitment to state hospitals, has revealed some startling abuses. Outside the Metropolitan District, 466 patients, of whom 87 were women, were confined in jails, lockups and police stations during the past twelve months. This was in direct violation of the spirit of the insanity law, which provides that "pending the completion of procedures necessary for commitment the patient must be cared for in a safe and comfortable place." Of the 1,615 new cases which developed in New York City, of which 653 were women, all were able to obtain hospital care only through police channels. It was agreed that the care and supervision of the indigent insane should properly devolve on the health officers of the state, pending the completion of procedures for commitment. In New York City this duty should devolve on the State Charities Aid Association.

Stony Wold Sanitarium.—The annual meeting of the board of directors of this institution was held January 26, when it was announced that the mortgage of $80,000 had been paid off and that the deficit of $25,386 left over from last year had been reduced by $3,000. The institution is in better financial condition than it has ever been before. Dr. D. Bryson Delavan reported that the percentage of apparent cures among the discharged cases was much greater than it was in 1907. Of the 224 patients treated during the year, 89 are still in the sanitarium, 135 having been discharged. Chancellor Henry H. MacCracken of New York University made an address, in which he said that New York State was behind some other states in that it practically left the care of its sick to private charities. In some states help was given to medical students, but New York did not educate any physicians. Some rural districts were unable properly to support a physician, and in some western states the state helped these small rural districts. The state should take up this matter as it did the matter of making suitable roads.

New York City

Addition to Dispensary.—The West Side German Dispensary has filed plans for the erection of a postgraduate department which will contain separate wards for male and female patients, a sun parlor and an anesthetic room.

Medical Certificates Not Accepted.—It has recently been decided at the Court of General Sessions that too many doctors have the habit of certifying to the inability of witnesses and defendants to appear in court, and that hereafter the doctor signing the certificate shall be required to come to court and to tell under oath the circumstances under which he made out the paper.

New Maternity Hospital.—The new Jewish Maternity Hospital on East Broadway was dedicated January 24. The institution is to be non-sectarian. An unusual feature of the hospital is a day nursery where children may be cared for during the absence of their mother at work; this will make it possible for many mothers to get the benefit of hospital care who otherwise could not leave their homes. An obstetrical training school for nurses will be maintained in connection with the hospital.

Norwegian Hospital Alumni Meet.—The Norwegian Hospital Alumni Association, Brooklyn, celebrated its one-hundredth meeting by a dinner at the residence of Dr. Sewell Matheson, January 13. The re-elected president, Dr. Robert E. Coughlin, presided as toastmaster. At the close of the dinner a silent toast was drunk to the Norwegian Hospital and its staff. The officers of the association are: President, Dr. Robert E. Coughlin; vice-president, Dr. John H. Ohly; and secretary-treasurer, Dr. Louis Stork, Jr., all of Brooklyn.

Memorial to Dr. McCosh.—A meeting was held December 17 to consider what steps should be taken to commemorate the services rendered the community by the late Dr. Andrew J. McCosh. It seemed to be the consensus of opinion that in view of Dr. McCosh's close identification with, and lengthened services at, the Presbyterian Hospital, the most fitting tribute to his memory would be a surgical pavilion, ward or operating room bearing his name in that institution. The precise character of the memorial could not be determined until it was ascertained how much money would be subscribed for the purpose. A committee was appointed to receive contributions and to formulate a plan for an appropriate memorial.

OHIO

Physicians Win Suit.—In the Common Pleas Court of Toledo the malpractice suit brought by Christian Kruse against Drs. James T. Lawless, Sr., and Jr., was decided in favor of the defendants. The plaintiff asked for $10,000 damages on account of alleged malpractice in reducing a fracture of the arm which was crushed in an ice-boat accident.

County Tuberculosis Hospital.—Franklin, Lucas, Cuyahoga, Hamilton, Mahoning and Allen counties have already complied with the requirements of the law establishing a tuberculosis hospital or contracting for patients in such an institution and prohibiting the keeping of tuberculosis patients in county infirmaries, which became effective January 1.

Hospital Notes.—The new building of the Providence Hospital, Sandusky, was dedicated January 20. The building contains eight sleeping rooms, parlor, nurses' study hall and work room.——The Woodhill General Hospital, Cleveland, established in the Newburg district, was opened to receive patients January 2. The institution will accommodate 25 patients.

Prohibit Prescriptions for Liquor.—At a meeting of Preble County Medical Society, it was decided by resolution to prohibit the issuing of prescriptions for liquor by physicians unless in cases of patients confined to the bed.——The members of the Guernsey County Medical Society are said to have adopted resolutions to issue no prescriptions whatever for alcoholic drinks, or medicine containing alcohol.

PENNSYLVANIA

Pittsburg Vital Statistics.—During 1908, there were reported 9,031 deaths in Pittsburg, equivalent to an annual death rate of 15.98 per 1,000. There was a decrease of 907 deaths as compared with the previous year. The mortality rate from tuberculosis was one per 1,000. The deaths from typhoid fever during the year were 254, or 286 fewer than in 1907. The deaths from measles increased from 62 to 252. Diphtheria, whooping cough, and diarrheal diseases of children caused relatively few deaths during the year. There were about 15,000 births during the same period.

Bill to Protect Babies.—Bills providing for the regulation of the sale of milk and for licensing persons boarding and keeping infants, and also for midwives, will be introduced at the meeting of the legislature. The milk bill regulates the sale of milk and its fluid derivatives and provides for licensing persons engaged in the business. The license fee is fixed at $5. For evasions of the law, a penalty of $50 fine or sixty days' imprisonment or both is to be imposed. A fine of $100 is the penalty fixed for violations in a bill providing for the regulation and licensing of persons receiving, boarding and keeping infants under 3 years of age. This measure, if passed, will go into effect September next.

Election.—At the annual meeting of the Medical Society of Franklin County, held January 19, the following officers were elected: President, Dr. Percy D. Hoover, Waynesboro; vice-presidents, Drs. Harry M. Miley, Chambersburg, and Ambrose W. Thrush, Green Village; secretary, Dr. John J. Coffman, Scotland (re-elected); assistant secretary, Dr. Henry C. Devilbiss, Chambersburg; treasurer, Dr. Johnston McLanahan, Chambersburg, and censor, Dr. J. Burns Amberson, Waynesboro. The society endorsed the "one board" bill which has just been introduced into the state legislature. A report was made urging the board of directors of the Chambersburg Hospital to allow legally qualified physicians to attend their private patients in the hospital.

New Medical Bill.—A bill intended to supersede almost entirely the present medical laws of this state will be introduced in the legislature at this session. The bill proposes a single board of medical examiners in place of the present three boards, representing the two elder schools in medicine and eclectic medicine. The single board is to consist of the superintendent of public instruction and eight other members to be appointed by the governor, two for one year, three for two years and three for three years from March 1, 1909. The qualifications for a license to practice medicine are very closely and rigidly defined, and the law is much more severe in its provisions with reference to malpractice and moral obliquity of any kind in practice than is the present act.

Vital Statistics.—During November there were reported 8,513 deaths in the state. Chief among death causes were pneumonia, 843; violence (including suicide), 819; tuberculosis, 797; diseases of early infancy, 444; nephritis, 404; diarrhea and enteritis, 349; cancer, 341; diphtheria, 243; typhoid fever, 185; scarlet fever, 131; meningitis, 56; whooping cough, 55; influenza, 50; measles, 34; and malarial fever, 5. The total number of cases of communicable diseases reported during December was 9,819, distributed as follows: Measles, 1,640; diphtheria, 1,588; scarlet fever, 1,537; chickenpox, 1,266; typhoid fever, 1,122; tuberculosis, 1,028; pneumonia, 789; whooping cough, 492; mumps, 139; erysipelas, 119; german measles, 43; cerebrospinal meningitis, 12; smallpox, 11; tetanus, 7; puerperal fever, 6; malarial fever, 5; trachoma, 4; and anthrax, 1.

Ordinance Regarding Tuberculosis.—The Tuberculosis League of Pittsburg has drafted and carried through the council of the city an ordinance, the object of which is to centralize the work in the Department of Public Health. The ordinance establishes the Division of Tuberculosis Inspection and Relief in the Bureau of Health under the Department of Public Safety, under the superintendency and direction of a commission consisting of the Superintendent of the Bureau of Health and four citizens appointed by the Director of the Department of Public Safety for terms of seven years, and to serve without remuneration. This commission is to be designated as the "Tuberculosis Commission of Pittsburg." The division of tuberculosis inspection is to prepare and keep accurate records of all cases of tuberculosis existing in the municipality, and inspect the dwellings, tenements, factories, shops and other places where cases of tuberculosis exist, ascertain the cause of infection, provide for the disinfection and cleansing of same and report to the proper department the cases needing charitable relief; to establish dispensary stations; to prepare and disseminate information as to the cause, treatment and relief of tuberculosis, and to adopt such other measures as will tend to eradicate the infection. The division is to have attached to it one clerk and five trained nurses, all to be appointed by the Director of the Department of Public Safety, who is also to provide suitable accommodation in connection with the Bureau of Health for the use of the division.

Philadelphia

Hospital Buys Lot.—The Medico-Chirurgical Hospital has purchased for $20,000 a lot 19 x 130 feet, on Eighteenth Street, adjoining the new hospital building.

Malpractitioner Convicted.—Mrs. Anne Shoenborn, who is said to have been thrice arrested and twice found guilty of criminal malpractice, and who recently was refused a new trial, was sentenced to two years' imprisonment, January 15, for attempted malpractice.

Dinner to Dr. Deaver.—A number of physicians who have been operated on by Dr. John B. Deaver are to give a dinner in his honor at the University Club February 14. More than 150 physicians are included in this category. A loving cup will be presented to Dr. Deaver on this occasion.

Filtered Water for the Entire City.—An inspection of the work of completion of the 120 preliminary filters of the Torresdale filter plant was made in January 29 by Director Stearns of the Department of Public Works, and Chief Dunlap of the Water Bureau, and it is declared that the entire city will be supplied with filtered water by March 1.

Liquor and Drug Habit Disqualify.—The Philadelphia County Medical Society has drafted a bill which includes a provision barring from practice physicians addicted to the use of liquor or drugs. In cases where this fact can be proved the license is revoked. Should a cure be effected, the practitioner may be reinstated, but, for a second offense, the license is to be revoked unalterably.

Spent to Aid Children.—More than $100,000 was spent during 1908 by the Cbhildren's Aid Society in aiding homeless and neglected children. The greatest single item was for board of children in the country, which amounted to $53,546, the sum expended for clothing amounted to $13,744. During the year, 394 children were received from various sources, and on December 31 the society had in its care 1,440 children. During the year, working homes were provided for 609 destitute mothers, each with one or two children.

To Separate Almshouse, Insane Asylum and Indigent.—A bill is now being framed by Dr. Joseph S. Neff, Director of Public Health and Charities, for presentation to the legislature providing for the separation of the Philadelphia General Hospital for the Insane and the Philadelphia General Hospital, now embraced in one group of buildings in West Philadelphia. The bill is so framed that the city will care for the indigents of the districts, and in return will have the use of the various plots of land now occupied by the district houses. It is proposed to locate the new City Almshouse or Home for Indigent, as the institution will be styled, at the Lower Dublin Almshouse, which comprises 150 acres, and the New City Hospital for the Insane at Byberry, where the city has 840 acres. Those infected with tuberculosis are to be cared for at Roxborough.

Officers Elected.—At the annual meeting of the Northern Medical Association of Philadelphia, the following officers were elected: President, Dr. Ralph E. Shrom; vice-president, Dr. William R. Bready, Jr.; secretary, Dr. Paul Bremer; treasurer, Dr. John W. Millick; corresponding secretary, Dr. Thomas Shriner; censor, Dr. Frederick Strauss; and librarian, Dr. Robert J. Hess.——The annual election of the Philadelphia Pediatric Society resulted as follows: President, Dr. John C. Gittings; vice-presidents, Drs. Herbert B. Carpenter, Charles A. Fife and B. Franklin Royer; treasurer, Dr. Howard C. Carpenter; and secretary and recorder, Dr. Maurice Ostheimer.——At the annual meeting of the South Branch of the Philadelphia County Medical Society, the following officers were elected: Chairman, Dr. Robert O. Kevin, and clerk, Dr. J. S. Kitchen.——At the meeting for organization of the Philadelphia Psychiatric Society, January 12, the following officers were elected: President, Dr. Charles W. Burr; vice-president, Dr. Albert R. Moulton; secretary and treasurer, Dr. Wilfred W. Hawke, and directors, Drs. John K. Mitchell and Francis X. Dercum.——At the annual meeting of the Medicolegal Society of Philadelphia, held January 26, the following officers were elected: President, Mr. Joseph Savidge; vice-presidents, Drs. Samuel P. Gerhard and Lambert Ott; secretary, Dr. William T. Hamilton; treasurer, Dr. George M. D. Peltz, and censors, James Wolfe and Drs. Francis J. Kelly and William D. Robinson.——At the annual meeting of the Philadelphia County Medical Society, January 20, the following officers were elected: President, Dr. Frederick P. Henry; vice-presidents, Drs. William E. Parke, Charles J. Hoban, F. Mortimer Cleveland, John F. Roderer, W. H. Morrison, Frank W. Thomas and Ernest W. Kelsey; secretary, Dr. William S. Way; assistant secretary, Dr. Alexander R. Craig; treasurer, Dr. Collier L. Bower; censors, Drs. Jay F. Schamberg and Louis H. Adler, Jr., and recommended to the state society as district censor, Dr. Milton B. Hartzell.

TEXAS

District Society Meeting.—The annual meeting of the Central Texas District Medical Association was held in Waco January 12 and 13. The retiring president, Dr. William A. Wood, Hubbard, chose as a subject for his address the history of the Central Texas District Medical Association, in which he paid a glowing tribute of respect to the living and dead expresidents. During the latter part of the first day's session the association met with the board of councilors of the State Medical Association and a general discussion was held on the subject of division of fees. It appeared to be the consensus of opinion that division of fees should not be encouraged or countenanced by the profession of the state. Dr. Milton P. McElhamon, Belton, was elected president and Dr. William M. Yater, Cleburne, secretary. Marlin was selected as the place, and July 12 and 13 as the time of the next meeting.

VERMONT

Gift to Hospital.—Mr. E. W. Bailey, Chicago, and Mr. L. D. Taft, Montpelier, have presented $10,000 to Heaton Hospital, Montpelier.

State Board Election.—At the annual meeting of the State Board of Health, held in Burlington, December 3, Dr. Charles S. Caverly, Rutland, was elected president, and Dr. Henry D. Holton, Brattleboro, secretary.

VIRGINIA

Society Meetings.—The Alexandria Medical Society, at its annual meeting elected Dr. Geo. T. Kleipstein president; Dr. Martin D. Delaney, vice-president; Dr. Robert L. Wilkins, secretary, and Dr. Lewellyn Powell, treasurer.——At the annual meeting of the First District Medical Society, held in Newport, January 5, Dr. Walter A. Plecker, Hampton, was elected chairman; Dr. George J. Williams, Newport News, secretary, and Dr. Clarance P. Jones, Newport News, councilor.——Richmond Chapter of Shaw University Alumni was organized January 6, with the following officers: President, Dr. Edward R. Jefferson; vice-presidents, Walter Brown, D.D.S., and Silas H. Shackelford, Phar. D.; secretary, Dr. William H. Hughes; corresponding secretary, Dr. Q. William Moon; chaplain, Dr. J. A. Dawson, and historian, Dr. J. R. Griffin.

WASHINGTON

New Hospital.—Sacred Heart Hospital, Spokane, has recently been completed at a cost of $500,000. The institution is a six-story building and on the roof is a sun parlor for convalescent patients.

Quarantine Rules Still in Force.—Dr. Elmer E. Heg, Seattle, secretary of the State Board of Health, has sent official notice to all local steamship owners and agents that the quarantine regulations are still in force as regards rat guards and fumigation.

Health Officers Organize.—The health officers of Washington met in Seattle recently, organized the Washington State Association of Local Health Officers, and elected the following officers: President, Dr. James E. Creichton, Seattle; vice-presidents, Drs. William W. Ballaine, Bellingham, Matthew B. Grieve, Spokane, and Albert P. Duryee, Everett; secretary, Dr. A. A. Brayer, Seattle, and treasurer, Dr. James F. Leslie, Watertown.

Personal.—Dr. Spiro Sargentich, Tacoma, returned from a visit to Montenegro January 15, and has resumed his work as health commissioner.——Dr. William C. Hastings, Seattle, fell on an icy pavement January 16, breaking his right hip.——Dr. Caleb E. Martin, Bellingham, health officer of Whatcom county, has resigned.——Dr. W. C. Wood has been appointed city physician of Seattle, vice Dr. R. A. Van Voast, resigned.——Dr. Nevin D. Pontius and Frederick Bentley, Seattle, have started on a trip to Honolulu, the Orient, and Europe.——Dr. X. P. DeDonato has been appointed health officer of Georgetown, vice Dr. Scott P. Wooden.

Medical Society Meetings.—At the annual meeting of King County Medical Society the following officers were elected: President, Dr. Grant Calhoun; vice-president, Dr. Robert M. Stith; secretary, Dr. Louis H. Redon, and treasurer, Dr. Herbert C. Ostrom, all of Seattle.——At the annual meeting of Spokane County Medical Society, held January 7, the following officers were elected: Dr. Harold H. McCarthy, president; Drs. Arthur T. R. Cunningham, and Peter D. McConack, vice-presidents; Dr. Carroll L. Smith, secretary; Dr. Samuel E. Lamber, corresponding secretary; Dr. Charles McC. Doland, treasurer, and Drs. Wallace W. Potter, Wilson Johnston, and George K. McDowell, censors, all of Spokane.——Skagit County Medical Society met at Mount Vernon recently and elected the following officers: Dr. George B. Smith, Anacortes, president; Dr. Adolph J. Osterman, Mount Vernon, vice-president, and Dr. Arnold L. Brandt, Mount Vernon, secretary-treasurer.——At the annual meeting of Lincoln County Medical Society, held in Davenport, Dr. Lee Ganson, Odessa, was elected president; Dr. Rufus P. Moore, Davenport, vice-president, and Dr. L. F. Waggoner, secretary-treasurer.

GENERAL NEWS AND COMMENT

Repetition of Alleged Original Articles.—The much too frequent practice of securing the publication of the same article in various journals, in the department allotted to original contributions, is unjustifiable on many grounds. It is unfair to the journal in which the article is first published, for it is a well-known rule of journalism that articles are accepted as original only on the understanding that they are not published elsewhere, save as a reproduction, with credit to the journal first publishing them. It is unfair also to those of the other journals that undertake to publish the article in ignorance of the fact that it has already been published. It is unfair to the readers of the various journals, who certainly do not subscribe for several periodicals in the expectation of finding the same so-called "original" matter in all of them. It is particularly trying to librarians, editors, and literature

researchers, when compiling or searching indexes, to find themselves confronted again and again with the same article. THE JOURNAL has many times commented on this matter. A recent instance is an article which appeared in *Surgery, Gynecology and Obstetrics* and the *Chicago Medical Recorder* for October, as well as in the *Virginia Medical Semi-Monthly* for October 23. It has since made various reappearances—which THE JOURNAL ceased to chronicle in its Current Medical Literature Department after the ninth publication—and is apparently still going strong. Its latest appearance is in the *Medical Fortnightly*, Jan. 25, 1909, where we find it announced on the cover under the head of original articles—"Perforating Wounds of the Uterus Inflicted During the Course of Intra-Uterine Instrumentation." This is immediately followed on the table of contents by the title of an editorial on "How Long, O Lord, How Long?" How very appropriate!

CANADA

Clean Milk for British Columbia.—Dr. Charles J. Fagan, Victoria, medical health officer of British Columbia, has prepared an elaborate report on the milk industry of that province. He was sent last summer to investigate the conditions as they existed in the large cities of eastern Canada as well as in some cities of the United States.

Vancouver's Mortality Rate in 1908.—According to the mortality statistics prepared by Dr. Underhill, medical health officer for Vancouver, the death rate in that city for 1908 was 9.816 per 1,000, and 13.059 per 1,000 in 1907. Of contagious diseases there were 590 in 1908 as against 679 in 1907. The report made as to tuberculosis notices 22 new cases and 72 deaths during 1908. In the previous year there were 28 new cases and 69 deaths.

Sanatorium for London.—Drs. Bruce Smith, Charles Hodgetts and Dr. John A. Amyot, Toronto, of the provincial staff, recently conferred with the staff of the London Hospital relative to the establishment of a sanatorium for consumptives in that city. It was intimated that the government was prepared to give a substantial grant if the hospital would employ part of the Contagious Diseases Hospital for that purpose. Twenty thousand dollars will be required and of this amount $4,300 has been secured.

Inducement to Study Tuberculosis.—Mr. W. J. Gage, Toronto, the promoter of the system of sanatoria under the Canadian National Sanitarium Association, and its treasurer announces a scholarship to the value of $100 for the students of the Faculty of Medicine of the University of Toronto, to encourage a closer study of tuberculosis. He also announces that he will donate a gold and silver medal to fourth and fifth year students and graduates of not more than one years' standing who will pass the best prescribed examinations in this important subject.

Personal.—Dr. William A. Young, managing editor of the *Canadian Journal of Medicine and Surgery*, Toronto, is convalescing from a prolonged and severe illness and will shortly proceed south for his health.——Dr. J. C. Davie, Victoria, B. C., is ill with cerebral hemorrhage.——Dr. Julius E. Lehmann, Winnipeg, city bacteriologist, has returned from Europe.——Dr. James H. Richardson, surgeon to the Toronto jail, has resigned after a service of over fifty years.——Dr. George R. McDonagh, Toronto, has gone on a visit to Rio de Janeiro.——Dr. Peter Macdonald, Wingham, Ont., has been appointed postmaster of London.——Dr. Frank Hall has again been elected mayor of Victoria, B. C.

The Muskoka Hospital.—In connection with statements made of exorbitant charges being made at the Muskoka Free Hospital for Consumptives, Mr. W. J. Gage, Toronto, writes that no patient is allowed to enter the hospital, no matter how desirous he may be to pay his way, as alleged, at $15 a week or more, as that institution is for patients who can not afford to pay anything for their maintenance. If a patient can pay $7.00 a week or more he is admitted to the Muskoka Cottage Sanatorium, a mile distant from the hospital. In the last weekly report of the hospital, dated January 23, there were 65 patients in attendance. Of these 38 contributed nothing to their maintenance; four paid $3.50 a week or less; four paid $4.00 a week; seven paid $5.00 a week, and two paid $6.00 a week. No patient is refused admission to Muskoka Free Hospital because of poverty.

Annual Banquet at McGill.—At the annual banquet of the faculty and student body of McGill University, the arrangements were under the charge of Mr. T. F. Cotton, B. A. As a feature of the occasion the undergraduate body presented to former Dean Roddick a splendid bust of himself, the work of Dr. J. J. Ross. Dr. Roddick in replying referred to the Roddick Act, or dominion registration. He stated that it still stood on the statute books of the dominion and could be made use of any day by the medical profession of Canada. Six of the nine provinces are ready to go on with it, while the other three are watching each other. He expects, however, that they will soon come together and put into operation the machinery he constructed several years ago while member of parliament at Ottawa. The new dean, Dr. Francis J. Shepherd, was the guest of honor. In his address he said he took office at a very critical stage in the faculty's career. The fire of 1907 had crippled the faculty; the establishment of the five years' course had curtailed the attendance; and there was the difficulty to handle of getting the necessary financial aid to rebuild and recquip. Despite these the medical faculty was going ahead. He prophesied the time when six years would be necessary for a course in medicine. In his opinion the public ought to give more financial support to medical schools than they do, in the form of endowment.

FOREIGN

Indian Medical Congress.—This congress, which is to be held in Bombay February 22-25, will confine its attention to the special problems of disease and sanitation in India. The work will be done in five sections: Section 1 dealing with cholera, dysentery, typhoid and tropical diarrhea; Section 2 with malaria, plague, Leishman-Donovan body invasion, and relapsing fever; Section 3 with animal parasites and disease carriers, snake venoms, beriberi, mycetoma, leprosy, and elephantiasis; Section 4 with disposal of sewage in India, water supplies, disinfection and naval and marine hygiene, including quarantine; and Section 5 with ophthalmic surgery, vesical and renal calculi and tropical surgery.

The Next International Congress on Climatology.—The eighth International Congress for Hydrology, Climatology, Geology and Therapy by physical agents is to be held in Algiers, April 4-10, 1909. Membership is open to all interested in questions connected with these subjects. The fee is $4.00. The congress coincides with the celebration of the semicentennial of the medical department of the Algiers University. A number of prominent French physicians form the committee on organization, assisted by physicians in all the other European countries, besides those of Northern Africa. Prof. Max Einhorn, 20 East Sixty-third Street, New York City, is at the head of the committee in this country.

The Catastrophe in Southern Italy.—Following the Sicilian earthquake, the medical profession took the lead in the work of relief, and Professor Durante left at once for Messina with six surgeons from his clinic at Rome and nearly two dozen medical students. About $5,000 was put at his disposal at once by the Italian Red Cross, with some supplies, and the university students raised another $2,000. Rummo and Castellino of Naples also organized relief bands. Among the professors in the medical department of the Messina University are G. D'Urso, U. Gabbi, A. Salamoni, P. Ferraro and F. Sanfelice. The latter was absent at the time delivering lectures on his method of serotherapy of cancer. He has recently had offers to found an institute for this method of treatment, but it is said that he rejects everything which savors of commercialism. Professor Gabbi was rescued by his 12-year-old, but he lost a daughter in the quake. Some of the other professors were away on their intersemester vacation. The organized efforts of the army surgeons were much more effective after the catastrophe than those of the rank and file of the profession which lacked the advantages of organization for concerted action. Steps have already been taken in high quarters to ensure better organization of the medical forces for sanitary purposes. There were no means of shelter even by the fourth and fifth day after the quake, and physicians had to care for the wounded in a persisting rain, and without any protection from the icy wind blowing a gale from the sea. Bureaucratic red tape is responsible for the lack of the necessary shelters, the *Policlinico* declares, as there are plenty of portable barracks stored away. The impotence of the medical men who hastened to the scene was felt so bitterly that the tragedy by the end of the week was even more moving than during the first days, waiting vainly for the vessels that did not come. The editorial estimates the number of wounded that required care as about 20,000. Cajus lauds in the highest terms the self-sacrificing labors of the local physicians throughout lower Italy who seemed to escape the earthquake as by some miracle, except at Messina, where the Professors Barbera, Zincone, Mele and D'Urso, with the latter's assistant, Betagh, were among the victims.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, Jan. 16, 1909.

British Medical Association

An acute controversy is being waged in the British Medical Association on the question of obtaining a charter. As originally construed the objects of the association were almost entirely scientific, but in recent years there has developed a strong tendency to take a more active part in such subjects as medical defence and the relation of the profession to hospitals and clubs. In order to enable the association to devote funds to these objects a legal alteration in its constitution has become necessary and application has been made to the government to grant a charter.

The Health of London

The report of the health officer to the London County Council, Sir Shirely Murphy, for 1907, has just been published. For the third year in succession the death rate has not been exceeded by any previous year and is lower than that of any English town with a population of over 200,000, with two exceptions. In 1905 and 1906 the rate was 15.1 per 1,000 inhabitants, a lower rate than ever recorded; in 1907 it fell to 14.6. This rate compares favorably with the other great capitals of the world. Thus, in 1907, the rates were as follows: Paris, 18.5; St. Petersburg, 24.7; Berlin, 15.4; Vienna, 17.3; Rome, 18.2; New York, 18.5. Comparing the three years, 1905-7, with the decennium 1891-1900, there was a gain of 19,000, 19,000 and 22,000 lives respectively, representing a gain in "life capital" (the total life expectation of those who survived in excess) of 2,000,000 years of life. On the other hand the birth rate for 1907 was 25.6, the lowest recorded in London; the marriage rate was 17. The death rate from the principal epidemic diseases was very low—only 1.42. No death occurred from smallpox and the death rates from measles, influenza, diphtheria, enteric fever, diarrhea and phthisis were below the average, but those from scarlet fever and whooping cough were above it. The condition as to vaccination is not satisfactory. During the first five years of the present decennium there were nearly 651,000 births, leaving after subtraction of deaths some 530,000 children under the age of 5. Of these, due to the abolition of compulsory vaccination, over 100,000 are unvaccinated. The existence of so large a proportion of unvaccinated children is necessarily a standing danger, although a considerable interval may elapse without any ill result.

The Youngest Known Human Embryo

Dr. J. H. Teacher of Glasgow has discovered the youngest known human embryo. Previously the classical 15-day ovum described by Professor Peters held that position. The ovum now in question was shown to the German Anatomic Society by Teacher and was accepted by Professor Peters as at least a day younger than his embryo. It is 0.77 millimeter in length and its age is established by the fact that only one coitus had to be taken into account and by the relation of this to the expected onset of menstruation. It is established beyond doubt that the maximum possible age is fourteen and one-half days, and the minimum twelve days. By comparison with other early embryos Dr. Teacher draws a number of conclusions. He agrees with v. Spee that there is an interval of seven days between fertilization and implantation of the ovum in the endometrium. Fertilization may occur at any time during the intermenstrual period and embedding either during endometrial quiescence or during what would be a premenstrual period if pregnancy had not occurred. He does not think that menstrual decidua is a preparation for the ovum or that menstruation is the abortion of an unfertilized ovum.

The Lay Press and Nostrums

Nowhere is venality more marked than in the degraded tone of the London press. It mainly represents capitalist interests and in any organ from the *Times* downwards one may read articles in denunciation of opponents which are a tissue of fallacies. To give the writers any credit for honesty one has to assume an incredible depth of ignorance. In such a medium it is not to be expected that the nostrum vendor will suffer from much restraint. The advertisement pages are freely open to him to put forward any claims however absurd. Sometimes there is a curious divergence between the editorial and advertisement columns. Thus in an editorial on a case in the law courts the *Times* lamented the fact "that the advertisement sheets of certain publications are continually made the vehicles of statements which can only be described as preposterous and frequently as being false to the knowledge of those who make them." The advertisement in question was appearing in the *Times* at the time and has appeared ever since! But the evil does not stop with the advertising pages. Not satisfied with advertisements on the same sheet as reading matter advertisers encroach on the reading matter itself. To encounter an article apparently devoted to some general topic of interest and to find after reading a column or so that it is simply an advertisement in a disguised form is an old experience. But of late one has become familiar with something much more specious—an editorial devoted to the same end. One of the most popular periodicals of the day is *T. P.'s Weekly*, edited by Mr. T. P. O'Connor, M. P. It is devoted mainly to the review of books and other literary subjects, and is of a high standard. Some time ago, under the title, "Forces," a series of articles appeared on the most eminent men of the day, such as Lord Kelvin, George Meredith and others distinguished in science and literature. One week the paper had the audacity to insert in the series an article devoted to Sandow, the gymnastic teacher. Gymnastics are an excellent thing in their way, but Sandow is exploiting his system, like any other nostrum vendor, as a cure for almost all the ills that flesh is heir to. It is heavily advertised in the press and even physicians have been enlisted to write testimonials for it. In the article in question, Sandow was represented as one of the greatest benefactors of humanity of the day. Of course the address of his establishment, to which no one would apply in vain, was given. In *Vanity Fair*, another high class periodical, is an article entitled "Health and Beauty," signed by the wife of the journalist mentioned above, a lady who is also well-known as a journalist. After reading into the second column one discovers that the object of the article is to exploit "Dr. Hommel's Hæmatogen." The address of the vendor is given of course.

London Hospitals

The work performed by the London hospitals in a year has been summarized by Mr. Percy E. Braun, the winner of the Howard Medal of the Royal Statistical Society for an essay on "The Cost, Conditions and Results of Hospital Relief in London." The chief items are as follows: Number of hospitals, 123, including twelve children's hospitals; total ordinary expenditure, $5,000,000; cost of provisions, $1,250,000; surgery and dispensary charges, $590,000; number of beds, 10,947; daily average of beds occupied, 8,977; in-patients, 132,670; out-patients, 1,871,495; out-patient attendances, 5,200,705; income from invested property, $1,300,000. Mr. Braun finds that the management expenses of the hospitals varies from 1.3 to 26 per cent. of the total ordinary expenditure. The most economical working in this regard was secured by the very large and the very small hospitals.

Gift for Medical Research

The medical school of London Hospital has received a benefaction of $100,000 which has been placed in the hands of its trustees to be invested to the best advantage. The income is to be paid yearly to three administrators, selected by the donor, who are to spend it in the advancement of medical research and the promotion of higher medical education. The administrators for this year are the chairman, Mr. Sydney Holland, and two members of the hospital staff. The money is to be spent on increasing the facilities for research and not on the routine teaching. The benefits of the gift will not be confined to students educated at the London Hospital but will be open to physicians from any part of the British empire who are willing to give up their time to advancing medical knowledge within the walls of the hospital. Young men capable of doing good scientific work are at present forced too soon into the routine of practice or teaching, by the necessity of earning a living. This fund will enable a certain number of carefully selected men to be freed from this necessity and apply themselves to research. The donor of this gift wishes to remain anonymous in the hope that the fund which he has just started will be increased by others. Some such fund is certainly much needed, as the British government does practically nothing to help research work but leaves everything to private munificence and enterprise.

Nurses for the Territorial Army

The new scheme for a territorial army equipped in every way analogous to the regular army instead of the old-fashioned militia and volunteers, has involved a vast plan of medical organization. As explained in previous letters, buildings have been marked out for use as hospitals in time of war and some of the most eminent surgeons in the country have volunteered their services in the various districts for staffing these

hospitals. A parallel scheme of nursing has now been devised. A meeting was held in London for the object of appointing a committee to carry out the scheme of the War Office for the creation of a nursing service for the territorial force of London. In addressing the meeting, Sir Alfred Keogh, director general of the army medical service, stated that under the old volunteer system there were no proper field hospitals at all. It was thought that the ordinary hospitals would, if the emergency arose, receive the sick and wounded of the volunteer force. At the beginning of the late South African war the managements of the great civil hospitals were questioned with regard to the number of beds they could place at the disposal of the army, and it was found that there would not be more than 400 available. As this was a very inadequate provision, the War Office decided to call on the civil medical profession. Realizing that there was nothing between the field ambulance at the front and those hospitals, the newly formed British Red Cross Society was asked to take part in the general medical management of the territorial army. The War Office has agreed to remove the sick and wounded from the area of operations, asking the Red Cross Society at the same time to work in each of the great centers of medical activity, such as Aberdeen, Oxford, Glasgow and Cambridge. Each nurse must be qualified for this service by three years' hospital training. The country has been divided up into twenty-three centers, each containing a ladies' committee. It is estimated that there will be 520 beds in each hospital. Matrons will be trained for these hospitals by going one week in every second year to one of the great military hospitals to gain experience. London is to have four hospitals with 120 nurses each. An influential committee of ladies was appointed to carry out the scheme.

Cerebral Hemorrhage and Employers' Liability

The recent Employers' Liability Act, which greatly extends the liability of employers for the accidents of workmen in the course of their occupation, is constantly raising difficult legal questions as to whether the morbid condition is due to the occupation or not. The latest question has arisen with regard to cerebral hemorrhage. A workman, while employed in lifting a heavy weight, had cerebral hemorrhage. He was put to bed, and four days later a second attack occurred, which was followed by permanent paralysis. At the time of the first attack his arteries were in a degenerate condition. The sheriff-substitute at Glasgow, before whom the case was tried, found that the workman had received personal injury by accident in the sense of the Workmen's Compensation Act. An appeal was made to a higher court. The court of sessions, to which the appeal was carried, held that the workman's final disablement was caused by accident arising out of and in the course of his employment within the meaning of the act. Lord M'Laren, in giving judgment, referred to a precedent, a case of injury to the muscles of the back caused by over-exertion in the course of a man's employment. He could not see any distinction between this case and the rupture of the cerebral vessel. This wide extension of employers' liability has had a consequence unforseen by its framers. The act was brought in by a liberal government under pressure from the labor party. The object of the latter is, of course, to get as much as possible for workmen regardless of consequences to any one else. Employers insure their workmen against accident. When insurance companies find men suffering from some affection such as a slight defect of sight which may increase the risk of accident they refuse to insure them. The result is that many men quite fit to work are refused employment because of some slight disability. Probably as the result of the decision in the present case a man whose arteries shows signs of degeneration will find employment more difficult to obtain.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Jan. 16, 1909.

Annulment of the Unpopular Competitive Examination

At a cabinet meeting, January 11, the minister of public instruction announced that as a result of the investigation made into the conditions under which the written tests of the "competitive examination for admissibility to the *agrégation*" were made, he was convinced that these conditions had been entirely abnormal. He has decided consequently to annul the results of this examination. Moreover, the council of the faculty, at its session of January 14, heard and discussed the report which Professor Pinard had been commissioned to submit for the information of the minister of public instruction, on the unanimous feeling (the opinion of the promoter of this *concours*, Professor Bouchard, excepted) of the professors of the Faculty against this examination. It is, therefore, more than probable that, notwithstanding the efforts of Professor Bouchard to defend this institution, the system of a competitive examination entitling the winners to compete for the subordinate chairs in the medical schools is destined to disappear.

Two New Professors at the Paris Medical School

The faculty has been called on to fill the vacancies in two chairs, viz., that of operative medicine, rendered vacant by the nomination of Dr. Quénu to one of the chairs of clinical surgery (in place of the lamented Professor Berger), and that of clinical surgery occupied by Professor Le Dentu, who is retiring. There were six candidates for the chair of operative medicine, and Hartmann was elected by 22 votes against 12 for Lejars. For the chair of clinical surgery, Pierre Delbet was elected by 22 votes as against 9 for Schwartz and 2 for Tuffier.

Reopening of the Faculty to First and Second-Year Students

The minister of public instruction has authorized students of medicine of the first and second years to return to work in the medical school (in the practical courses) but at the first breach of order this permission will be withdrawn. If no fresh disorders occur, first and second year students may be allowed to take the usual January and March examinations cumulatively in March.

The Cross of the Legion of Honor for a Hospital Interne

In the New Year's appointments to the Legion of Honor appears the name of a hospital interne, M. Louis Bazy, son of the well-known surgeon. The act of courage which gained for the young interne—he is only 25 years of age—this distinction is as follows: One day last March, he being then an interne in the service of the late Professor Berger, at the Necker Hospital, was assisting his superior in an operation for purulent pleurisy when a jet of pus squirting from the wound struck him in the left eye. He ought at once to have disinfected the eye, but as this would have entailed a temporary arrest of the operation, Bazy remained courageously at his post. Some days afterward serious ophthalmia developed, and after six months of suffering enucleation of the eye was found necessary. A few days later, when this courageous act was related to the president of the republic, he decided to bestow the cross of the Legion of Honor on M. Bazy. It is worthy of remark that, since the system of internes (*l'internat*) was established in 1802, the list of internes who have met their death in the accomplishment of their professional duties is a long one, and the marble tablets in the Hôtel-Dieu, below a bas-relief by the sculptor Denys Peuch, are covered with the names of these noble martyrs to duty. About thirty years ago, the cross of the Legion of Honor was taken, four hours before his death, to the interne, Herbelin, who was attacked with diphtheria at the Trousseau Hospital.

Decrease of Tuberculosis in Postoffice Employés

Dr. Héricourt recently presented to the government chief of the postal and telegraph services his annual report on the service of special consultations for diseases of the chest in the postal service, and on the hygienic inspection of the postoffices of Paris and of the department of the Seine. This medical service was established in 1905 to combat the ravages of tuberculosis among postal employés. The results obtained are most encouraging, as the number of tuberculous employés, which in 1906 was 1,048, fell in 1907 to 808, and in 1908 was only 505; that is to say, in the space of three years the morbidity from tuberculosis has diminished by 50 per cent. This result is due to three important measures: In the first place, the government undertook the sanitation of the postoffices, rendering sanitary those buildings which were capable of such transformation, and condemning those in which the conditions could not be ameliorated. In 1908 there remained 54 sanitarily defective postoffice buildings, as against 91 in 1906 and 77 in 1907. To suppress the dangers of contagion, each employé affected with tuberculosis was supplied with a pocket cuspidor and care was taken that he made use of it. Finally, those affected in the first degree were accorded a long leave of absence on good pay, which permitted the arrest of the disease at its commencement.

Medical Inspection in the Schools of Paris

The inadequacy of medical inspection in the schools of Paris has become particularly manifest since the closing of the Roman Catholic schools has nearly doubled the number of scholars in certain rooms of the public schools. The com-

plete reorganization of the medical inspection service is to come up at the next meeting of the city council. It is proposed to increase the number of *circumscriptions* from 49 to 175. The high schools and the technical schools will be included in the new service on the same footing as the primary schools. The plan proposed defines the rôle of the medical inspector as follows: The physician shall inspect the existing schools, taking account of the cubic air space of the rooms, their lighting, ventilation, etc. He shall be consulted in regard to schools under construction, and shall not neglect during his visits to take note of the cleanliness of the building. The measures proposed particularly call the attention of physicians to the benches and desks, which, as LeGendre has stated, have created generations of myopes and of crookbacks. The prophylaxis of transmissible diseases will be assured, particularly by vaccination and revaccination. It is further proposed to make out for each pupil at the time of his entry into the school, an anthropometric record (weight, height and chest measure), a physiologic record (defects of vision and troubles of hearing), and an organic record (constitutional weakness, rachitis and tuberculosis). The necessity of giving both to pupils and masters elementary instruction in hygiene, to put them in position to defend themselves usefully against the great scourges which decimate the race—alcoholism, tuberculosis, etc.—is to be emphasized, as also instruction in the hygiene of daily life, how to breathe, to nourish themselves, to clothe themselves comfortably and to keep themselves clean. In this respect it is to be much regretted that the shower baths installed in a certain number of schools are not introduced in all. The medical inspectors are to be recruited by competitive examination. Their visits will be made weekly. The salaries will range from 800 to 1,200 francs per annum ($160 to $240).

Respite from Toil for Pregnant Workingwomen

Since the Berlin Conference of 1890, to the recent Congress at Rheims, the desirability of enforcing rest for workingwomen during pregnancy and after delivery has been repeatedly urged since ton in workshop or factory is particularly prejudicial both to the health of the mother and to the development of the child. There are, however, great difficulties in the way of the realization of the principle. Germany and Austria alone have passed effectual regulations in this line, for they have supplemented the prohibition of work by the pecuniary relief necessary to make the prohibition operative. In France, Italy and Switzerland, bills are under consideration for assuring to convalescent mothers aid during the suspension of their work. But, curiously enough, what especially retards the realization of this reform is the attempt to give too wide a scope to such assistance. In the French Chamber of Deputies some time ago, and recently in the Senate, such bills have failed of adoption, because they provided for giving of such relief to all wage-earning mothers, not merely to those employed in workshops or factories. It is nevertheless evident that the workingwoman in the factory or workshop has greater need of protection than the farm servant or the housekeeper.

The Hygiene of Mines and the Diseases of Miners

M. Gréhant, professor of general physiology at the Museum of Natural History, and member of the Academy of Medicine, has devoted himself for some time to the study of the application of physiology to hygiene. The perils of mining—diseases of miners and dangers of explosive gases—have particularly occupied his attention. He has recently been charged with a scientific mission to Belgium to study ankylostomiasis there, and some days ago he gave a public address on the occupation risks of miners, in which he presented a noteworthy summary of his work on fire-damp in mines, prosecuted since 1892. His researches have resulted in the construction of a simple apparatus for revealing even traces of fire-damp in the air; it thus becomes possible to note the proportional content at which an explosion of gas is to be feared. This proportion becomes considerably reduced when the atmosphere contains coal dust, and it was precisely the presence of coal dust which determined the terrible catastrophes at Courrières in France, at Fairmont in the United States, and at Hamm in Germany. To date, the best remedy known against fire-damp is thorough ventilation of the mines. It is necessary, however, frequently to take stock of the proportion of dangerous gases contained in the air. Gréhant considers it absolutely necessary to make, day and night, repeated analyses of the air in the galleries, and he has simplified the eudiometric apparatus in such fashion that the air can be tested frequently, each test requiring only five or six minutes. [His communications on the subject have been summarized in THE JOURNAL as they appeared.—ED.]

In regard to the question of parasites, it is interesting to note that Weinberg, in collaboration with Leger and Romanovitch, has been able, recently, to demonstrate in many mining departments of France the existence in an endemic state of an enteritis due to an intestinal anguillula. The latter is found especially in the foci of ankylostomiasis, both parasites needing for their development the same conditions of temperature and humidity. Weinberg has also shown that the mines of central and southern France are not free from the hookworm as is generally supposed. Speaking generally, intestinal helminths are met with in nearly 70 per cent. of miners. The trichocephalus is far the most frequent; the ascaris less so. With the exception of the ankylostoma and the anguillula, the intestinal parasites are found with a frequency almost equal among deep and surface miners, both making a daily use of uncooked vegetables derived from gardens fertilized with human manure.

VIENNA LETTER

(From Our Regular Correspondent)

VIENNA, Jan. 18, 1909.

Instruction in Medical Ethics

The Vienna Aerztekammer (local medical council of Vienna) has presented to the minister of education a petition for the creation of a special chair for instruction in medical ethics and sociology, according to a plan embracing the following points: (1), the relation of the practitioner toward the general public, the local authorities, and the law, civil and criminal; (2) his duties toward the local medical organization; (3) the relations between the doctor and his patients, the duties and rights of the latter in these relations, and his duties toward his colleagues in private practice (medical ethics in the stricter sense); (4) the duties of the doctor in regard to contract, club and insurance practice; and (5) the notification of diseases (infections, industrial or occupational).

Besides these social-medical subjects, social hygiene should be taught theoretically and practically. Physicians are not now, in Austria at least, in the front rank of those who are grappling with this problem; they must regain this position. The following subjects are recommended as appropriate for study: History of social hygiene, social statistics (morbidity and mortality of various classes, occupations, races, ages), and special hygiene (schools, buildings, food). If these studies were added to the curriculum of the medical student, the competence of the future physician would be increased and social progress advanced.

Campaign Against Idiocy and Cretinism

A report of the ministry of the interior gives some interesting figures in regard to the extensive government measures for combating the conditions of hypothyroidism and athyroidism, which are known to cause idiocy. Professor Wagner has made extensive studies and experiments in the regions in which these conditions prevail—several mountainous districts in the Alps and the Karst mountains with clay and lime subsoil. With Wagner's researches as a basis for work, local physicians have been instructed to administer thyroid tablets to certain idiots and to report on the results; 124 persons were thus under observation. In 80 per cent. a marked improvement was obtained in four to eleven months, under administration of quantities of 36 to 100 gm. (1 to 3 ounces) of thyroid substance; 12 per cent. showed no improvement within one year, while 8 per cent. did not tolerate even small doses well. In nearly all cases the integument became fairly normal, the height increased a little, and the intellectual qualities improved.

The Housing of the Poor

Rents are becoming very high in Vienna; but, slums not being allowed there, the question of the housing of the poor is a burning one. A philanthropic society has been organized with a view to the erection of a number of workingmen's houses which shall meet the requirements of hygiene and of the small means of the tenants. Among the rules in accordance with which the houses are to be planned are the following: No back rooms except kitchens, conservatories and corridors may look into the yard. Each floor must have a bathroom. The cubic air space must be at least 45 cubic centimeters per room. Overcrowding (more than four persons in a room) is not to be allowed. Sufficient provision must be made for ventilation and water supply. Water closets are to be arranged so that they will be warmed by the smoke coming from the kitchen stoves. The last provision is a novelty here and is very useful in winter.

The Antialcohol Movement

A recent report of the League of Austrian Antialcoholists contains much interesting information. For instance, many clinical teachers in the German and Slavic universities of Austria (in Vienna, Prague, Cracow, Lemberg and Graz) have recommended a non-alcoholic plan of treatment of diseases, such as pneumonia, erysipelas and septicemia, in which alcohol has hitherto been frequently used. Among the students, who still regard beer as indispensable at their meetings, the antialcohol movement is constantly gaining ground, in part because of the admission of women to the universities. The league has devoted considerable sums, thus far in vain, to the search for a substitute for beer.

The national expenditure for intoxicating beverages amounts to $250,000,000 for a population of 28,000,000 in the Austrian part of the empire. Temperance, instead of total abstinence, is now recommended in many parts of the country; this compromise attracts a larger following to the league. The necessity for temperance is now taught in many of the schools. Students matriculating at the universities are handed leaflets admonishing them, among other things, to let alcohol alone.

Pharmacology

[CONTRIBUTION FROM THE CHEMICAL LABORATORY OF THE AMERICAN MEDICAL ASSOCIATION.]

ZINC PERMANGANATE

An Examination Made to Determine the Purity of Preparations on the Market

W. A. PUCKNER and W. S. HILPERT

Zinc permanganate, not being official in any pharmacopeia, has no definite standard of purity. At the request of the Council on Pharmacy and Chemistry, an examination of zinc permanganate tablets was taken up in the Association's laboratory. To judge the quality of the tablets, it was necessary to learn the quality of the available brands of zinc permanganate on the market, an examination of which was undertaken.

ZINC PERMANGANATE

Specimens were purchased in the open market and, in order to obtain samples of recent manufacture, the various manufacturers and dealers were advised that their products were to be examined and were requested to submit specimens. In general, the purpose of this examination was endorsed and samples were promptly submitted.

In appearance the samples varied from dry, lustrous, crystalline masses of a dark-brown, almost black color, to moist, fine particles, more or less contaminated with the decomposition products of the permanganate. The bottles containing the moist samples bore evidence of decomposition by the varying degrees of discoloration of the inner surface of the glass. The specimens varied but slightly in solubility, all dissolving to deep violet-red solutions containing varying quantities of insoluble manganese oxid.

The specimens were examined[1] to determine their permanganate contents with the following results:

BRAND.	SOURCE.	PER CENT. OF $Zn(MnO_4)_2 6H_2O$.
The Mallinckrodt Chemical Works..	Purchased	73.77
The Mallinckrodt Chemical Works..	Submitted	73.70
Powers-Weightman-Rosengarten Co..	Purchased	97.05
Powers-Weightman-Rosengarten Co..	Submitted	96.99
Merck & Co.....	Purchased	88.72
Merck & Co.....	Submitted	91.49
Lehn & Fink.....	Purchased	72.76
Lehn & Fink.....	Submitted	96.77

1. The method of valuation adopted was the one proposed and used by Dr. J. Biel (Proc. Am. Pharm. Assn., xxix, p. 268) in his examination of commercial solutions of zinc permanganate, i. e., the titration of the solution by standard oxalic acid. Because of the varying purity and quantities of insoluble matter admixed with and covering some of the particles, it was considered necessary to triturate the samples with water to extract completely the soluble matter. The samples were triturated with water, the mixture transferred to an asbestos filter and the filter washed till all the soluble matter was in solution. To the solution thus obtained dilute sulphuric acid was added, the solution warmed and treated with an excess of tenth-normal oxalic acid solution and then titrated back with tenth-normal potassium permanganate. Each cubic centimeter of tenth-normal oxalic acid is equivalent to 0.00408 grams of zinc permanganate, $Zn(MnO_4)_2 + 6H_2O$.

The specimens of the Powers-Weightman-Rosengarten Company's product were large crystalline masses free from any coating or admixture and readily soluble, leaving scarcely any insoluble matter. The Mallinckrodt Company's product was in small moist particles, devoid of the metallic luster characteristic of the product. It dissolved less readily than the P.-W.-R. brand and left considerable insoluble matter. The samples from Merck & Co. consisted of medium sized masses, free from moisture, but not so lustrous as the purer samples; they dissolved rather readily, but left an appreciable quantity of insoluble matter. The specimen bearing the name of Lehn & Fink, purchased in the open market, consisted of very finely divided material showing considerable evidence of decomposition; on the other hand, the specimen submitted was free from any signs of deterioration and consisted of large, well-formed, unbroken and dry crystals.

TABLETS OF ZINC PERMANGANATE

Three specimens of zinc permanganate tablets were examined. One specimen was submitted for examination by Burroughs Wellcome & Co.; the other two were products of H. K. Mulford Co., one specimen being supplied by the firm and the other purchased in the open market.

BURROUGHS, WELLCOME & CO.'S TABLETS: The tablets submitted by this firm showed unmistakable signs of decomposition by the presence of a coating of manganese oxid, which penetrated the interior of the tablets to some extent. They were very hard and dissolved very slowly, when simply agitated with a large amount of water, yielding in this manner only about 50 per cent. of the permanganate actually contained therein. When placed in the quantity of water required to make a solution of the strength suggested by the manufacturers the individual tablets varied in the ease with which they dissolved. In one case the tablet, in the required amount of water and frequently agitated, required three hours for complete disintegration; another required four hours, and still another after being in water eighteen hours showed only faint signs of disintegration. Only when the tablets were disintegrated by trituration with water was it possible to dissolve all the permanganate present. The tablets contained 86.28 per cent. of the claimed content of zinc permanganate (0.008 gm. per tablet).

H. K. MULFORD CO.'S TABLETS: In these tablets the properties were found to correspond more nearly to pure zinc permanganate. In color the tablets were almost black, showing no signs of decomposition or discoloration and were easily disintegrated in water, leaving scarcely any insolubie matter and requiring no trituration to effect solution; but in the actual estimation the tablets were all triturated simply for the sake of uniformity of technic. The tablets contained, in the specimen purchased in the market, 89.60 per cent. and in the specimen submitted by the manufacturer 89.58 per cent. of the amount of zinc permanganate claimed (1 grain per tablet).

SOLUTION OF ZINC PERMANGANATE

One specimen of Merck's zinc permanganate solution, 25 per cent., was also examined. It was found to contain 95.45 per cent. of the amount of zinc permanganate claimed, and might, therefore, be pronounced as complying with the label.

In 1881, Biehl[2] found that some brands of zinc permanganate solution had only 7 per cent. of the amount of the salt they were claimed to contain, while some of the crystalline solid products contained only 62 per cent. zinc permanganate. It is commendable that the manufacturers have made sufficient improvements since that time in the manufacture of zinc permanganate to bring it to the uniformity of the present-day product. The analyses show that the specimens found on the market (with one exception, that of Lehn & Fink), correspond in composition with those obtained direct from the manufacturers or dealers.

From the above it will be seen that the purity of zinc permanganate now on the market varies from 72.76 per cent. to 97.05 per cent., a difference of 23.29 per cent. In view of this, it is evident that some standard of purity for

2. Proc. Am. Pharm. Assn., xxix, p. 268.

zinc permanganate should be established.[3] With this end in view, this examination has been submitted to the Council on Pharmacy and Chemistry with the following recommendation: That zinc permanganate be included with New and Nonofficial Remedies as an unofficial non-proprietary article, and that it be required to contain not less than 90 per cent. of pure zinc permanganate. Physicians desirous of using this product will, therefore, be able to obtain a salt of good quality if they will write in their prescriptions: "Zinci Permanganas, N. N. R."

As zinc permanganate is more easily reduced than potassium permanganate, the zinc salt is said to be the more powerful antiseptic and the claim is made that a comparison of the efficiency of the two substances based on the permanganate test is perhaps open to criticism. Physicians who wish to experiment with zinc permanganate may be interested in knowing that owing to its higher molecular weight zinc permanganate must be used in relatively larger quantities than potassium permanganate, provided the same permanganate content is wanted. By comparison of the equivalent molecular weights, about 1.4 gm. commercial (90 per cent.) zinc permanganate contains the permanganate equivalent of 1 gm. potassium permanganate.

CATARRH AND COLD CURES

The Composition of Some "Patent Medicines" Analyzed by the British Medical Journal

In continuing its investigation of secret remedies, the *British Medical Journal* (Oct. 24, 1908) takes up "catarrh and cold cures," giving analyses of Dr. Lane's Catarrh and Cold Cure, Van Vleck's Catarrh Balm, Dr. Mackenzie's "One Day" Cold Cure, Keene's "One Night" Cold Cure, Munyon's Catarrh Tablets, Munyon's Special Catarrh Cure, and Birley's Anti-Catarrh.

Dr. Lane's Catarrh Cure turns out to be a dilute solution (0.4 per cent.) of phenol (carbolic acid) and common salt (3.3 per cent.) in water. The preparation on which the Keene company guarantees the breaking up of any "ordinary" cold in one night is said to consist of "Cascara, Bromid, Quinin, Ipecac, Camphor, Bryonia." The analyst was unable to find any indication of bromid, camphor, cascara or ipecac, while the quinin turned out to be a trace of impurity in the cinchonin present, but he did find acetanilid in very appreciable quantities.

Munyon's Special Catarrh Cure consisted of sugar, which had possibly been medicated with a tincture containing infinitesimal quantities of medicinal agents. The usual disproportion between cost and retail price is maintained in these as in other secret remedies.

Editorially the *British Medical Journal* takes up these "catarrh cures" as examples of the methods of the nostrum makers and notes how the seriousness and evil consequences of the disease are exaggerated, quoting the statement from the advertisement of one of the articles that "it is estimated that over 20,000 people died in the United Kingdom last year of consumption caused by catarrh." "The remedy put forward for this malignant disease is shown," says our contemporary, "to consist of a solution of a pinch of common salt with a trace of carbolic acid, the actual cost of the quantity sold for a shilling [24 cents] being one-thirtieth of a farthing [1/60 of a cent]." The *British Medical Journal* concludes: "So long as quack and secret nostrums enjoy their present immunity from legal control, the only way to educate the public out of the practice of resorting to their employment appears to be persistent exposure of their useless or harmful nature. The public, or that part of it which plumes itself on its knowingness, is perhaps disposed to assume that the opinions of medical men on the subject are biased, but accurate statements of the real composition of particular nostrums can hardly fail to carry weight, even with the most suspicious."

The Proprietary Habit

The *Druggists Circular* (January) comments on the complaint of a pharmacist who has become discouraged because after several joint meetings of physicians and pharmacists in his city a physician's prescription has come to his notice in which were included four different proprietaries. The drug journal reminds the faint-hearted druggist that probably the great majority of physicians in his city have given up the use of nostrums and suggests that he should not lose heart so easily. It continues:

"We wonder how often and through how many years this druggist's mother, when he was a little boy, told him that he must hang up his hat when he came into the house and not throw it on a chair or table or bed where it would be in other people's way, look disorderly and be hard to find when he wanted it. And he had not been begged, pleaded with, argued to and bribed with many free samples, blotters, note books, calendars, pencils, prescription pads and the like, to throw his hat around, and he had not formed a more or less fixed habit of doing this before his mother began to work on him. Let us suppose that she had explained to him the advantages from an economic, artistic and ethical standpoint of hanging his hat on the rack in the front hall and had repeated the explanation once every three months for a year, while bad boys were giving him tops, bean shooters, pop guns, licorice sticks, twine, marbles and now and then a kite or a toy steam engine or a bow and arrows, to induce him to continue to hang his hat on the floor or mantel, what would have been the result?"

Hoff's Cure for Consumption

Several inquiries regarding the composition of "Professor Hoff's Cure for Consumption" having been received, the chemical examination of this preparation was taken up in the Association laboratory. The following is the report of the analysis:

Professor Hoff's Cure for Consumption, manufactured by Bendiner & Schlesinger, Third Avenue and Tenth Street, New York, is a dark brown liquid with a bitter taste and an odor of opium. The label on the bottle—at least since the advent of the Food and Drugs Act—states that the preparation "contains, in addition to other valuable medicaments, watery extract of opium 2 grs. to each ounce." Besides opium the preparation was found to contain approximately 2.5 gm. sodium cinnamate to each 100 c.c., sugar and a caramel-like coloring. The presence of heavy metals, iodids or bromids, could not be demonstrated.

The "Cure," then, consists essentially of sodium cinnamate (hetol) and extract of opium, a mixture at one time suggested for the treatment of tuberculosis, but which like many remedies has since been discarded. A remedy which depends on opium for whatever therapeutic effect it may have, is, when sold indiscriminately to the laity, inherently vicious.

Correspondence

Better Statistics of Industrial Mortality for the United States

To the Editor:—I read with much interest the leading editorial in THE JOURNAL, Jan. 9, 1909, p. 138, on "Industrial Hygiene: a Neglected Field," and wish to make it the basis of an appeal for the cooperation of the medical profession of the United States in securing more definite statements of specific occupation and industry of decedents on certificates of death. As you justly say, in this country industrial mortality and morbidity statistics are inadequate and often misleading from their very inadequacy; and this unsatisfactory condition contrasts strongly with the completeness of industrial mortality statistics in the other countries.

3. The need of some standard is indicated by a report from the analytical laboratories of the H. K. Mulford Co., (Am. Jour. Pharm., May, 1908, p. 224) in which the following general statement is made:

"During the last few months we were unable to get a zinc permanganate which was entirely soluble in water. As this product is used not only for injections, but also for eye washes, it would evidently be dangerous to use a product containing insoluble matter, the latter causing irritation of the membranes to which the solution is applied. The best sample we got hold of contained 8 per cent. insoluble matter; one sample submitted to us by a prominent house contained even 32 per cent. insoluble matter. As we all know, the salt decomposes very rapidly if exposed to light and air, but the once decomposed salt is certainly unfit for medicinal purposes."

The mortality of occupations is one of the most difficult problems of vital statistics, especially in the United States, where only a little over one-half of the population possesses fairly complete registration of deaths. The accuracy of figures showing occupational mortality from various causes of death depends on the completeness and precision with which several factors are recorded. These are: 1, occupation and age (in the census enumeration), 2, occupation and age of decedents (on certificates of death), and 3, cause of death (stated by the attending physician, health officer or coroner on the medical certificate). It is especially important that the mode of statement of occupation and of age shall harmonize on the population schedules and the transcripts of deaths, as otherwise the ratios of occupational mortality which are based on the comparison of these two sets of returns will be to some extent unsatisfactory.

Much attention is being given to the subject of occupation by the division of population of the census in connection with the preparations for the taking of the thirteenth census in 1910. The census bill, now in conference, provides for the statement after "occupation" of "whether or not employer or employé," and it is contemplated to ask the further question of "by whom employed," so that by reference to a list of industrial establishments, it is hoped, the precise nature of the industry as well as the specific character of the occupation of the individual can be established. Furthermore, an analytical study is now being made of the extremely numerous terms returned at the twelfth census for the designation of occupations, so that for the first time in this country the material will be available for a thorough classification of occupations. On the basis of this information and of previous experience precise instructions will be formulated for the enumerators of population at the approaching census, and it seems likely that the data relating to the occupations of the inhabitants of the United States who are enumerated in 1910 will be more valuable than any ever before collected.

Efforts are likewise being made to secure better reporting of occupations in the mortality returns. At the meeting of the American Public Health Association at Atlantic City, 1907, I submitted for consideration by the organized registration officials of the country propositions which emphasized the importance of uniformity of instructions in regard to the reporting of occupations in the population and mortality schedules, and specified the following points on which information might be secured: The kind of industry (pottery, for example) as well as the kind of occupation (laborer, for instance); the length of time employed from beginning the occupation until death; in the case of a recent change of occupation, the nature of the previous occupation, which may have been the predisposing cause of death; in the case of persons unemployed, the last previous employment, for the same reason; occupation of all decedents over 10 years of age, and of all decedents under 10, if employed in any gainful occupation; in the case of children under 10 years old, the occupation of the bread-winning parent.

The suggestions were published in the *Quarterly Publications of the American Statistical Association*, December, 1907. At the second annual meeting of the American Public Health Association held at Winnipeg, August, 1908, two of the propositions were adopted, and have now become accepted rules of practice of the registration officials of the United States. These are the rules that the nature of the industry should be ascertained as well as the nature of occupation, and that the occupation of all decedents over 10 years old should be stated, also the occupation of decedents under 10, if engaged in any gainful occupation.

The other propositions are still under consideration and will be reported on at the meeting to be held at Richmond, Va., during the present year. At the same time, a revised form of the "standard certificate of death" will be adopted, of which the improved statement of occupation will form a part, so that we shall be able to begin the use of the new blank on Jan. 1, 1910, and thus obtain better returns of occupations for the census year. It will then be possible for the Bureau of the Census to prepare, for the reporting of occupations, instructions that will be entirely consistent with the instructions given to enumerators for the return of occupations on the population schedule, and, with the cooperation of the state and city registration services, these instructions can be brought to the attention of every physician, undertaker, and local registrar in the United States who has to make out the original reports.

In the United States physicians do not as a rule, though they do occasionally, certify to the occupation of the decedent, but they might readily note, when the certificate is presented for statement of the cause of death, whether the occupation is properly stated or not. In fact, it might be possible to provide for an indorsement by the medical attendant of the statement of occupation, with the addition of such details as may be necessary for proper classification. He could call special attention to the effects of former occupation as determining the cause of death.

I am afraid, however, that physicians would be apt to consider even the simplest addition to the present form of question as unduly complicated and as savoring too much of "red tape" and inquisitiveness into personal particulars; and if so, it is not likely that the other classes of informants, who may not understand the practical uses of the data, will be likely to yield better results. I should therefore be very glad to learn the personal views of as many physicians as possible in all parts of the country with respect to the suggestions made for obtaining a better statement of occupation on the certificate of death, and to know how fully the medical profession is disposed to cooperate therefor.

What physicians can readily do without question is to furnish more precise statements of cause of death, and to use only the accepted medical terms to describe well-known diseases, taking special pains to note that diseases or injuries due to occupations are definitely indicated. Thus "lead poisoning (house painter)" would clearly indicate, not a case of accidental acute poisoning from some salt of lead, but a probable chronic poisoning, and, moreover, occupational, thus definitely assigning its position in the international classification. The painter may have been compelled to relinquish his proper occupation on account of his illness from the effects of lead, and the occupation given by the informant may have been of quite a different sort. The physician's statement will enable the true connection of occupation and disease to be shown. The means of the injury should always be given in deaths from violence, and a clear statement as to whether the violence was accidental, suicidal or homicidal. If the injury was connected in a direct way with the decedent's occupation and the occupation is not clearly stated under the head of "personal particulars," then reference to it may be made in the statement of cause of death. For example, the informant may have given the occupation of a certain individual as "laborer." The physician, noting the insufficiency of the statement, may report under cause of death: "Accidental fall down shaft (coal mine)." This will enable a correct compilation to be made.

Mortality statistics of occupations can not rise above their sources with respect to accuracy, and it would be a mistake to make too elaborate compilations of data for which the original statements were lacking in precision.

CRESSY L. WILBUR, M.D., Chief Statistician.
Bureau of the Census, Washington, D. C.

Expression of Intubation Tube

To the Editor:—I notice in THE JOURNAL, January 23, p. 314, a communication from Dr. Golden regarding the expression of O'Dwyer's tube. So far from being at all recent, this procedure lacks not very many years of being as old as intubation itself, and has, I think, been commonly used for the removal of the short French tubes. The longer and differently shaped O'Dwyer tube does not, however, lend itself so readily to the application of the method, and often requires the use of force which might result in traumatism of the larynx. The only serious case of "retention" of the

tube with which I have had experience was probably the result of a demonstration of this process. I hope, therefore, that other operators will not be led by Dr. Golden's letter to try the method except in case of a real emergency.

THOMAS B. COOLEY, Detroit.

A Micro-Organism which Apparently Has a Specific Relationship to Rocky Mountain Spotted Fever

To the Editor:—Through an oversight in calculating, the serum dilutions, to which I referred in my article with the above title in THE JOURNAL, January 30, page 379, were wrongly stated. The dilutions actually employed were twice those stated in the article, and should have been given as follows: 1 in 2, 1 in 20, 1 in 40, 1 in 80, 1 in 160, 1 in 240, 1 in 320 and 1 in 400. Therefore the complete agglutinating power of the immune serum was manifested in the dilution of 1 in 320 instead of 1 in 160.

H. T. RICKETTS, Chicago.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish name or address will be faithfully observed.

CONTAGION AND INFECTION

To the Editor:—What is the difference in meaning between "infectious" and "contagious"? STUDENT.

ANSWER.—The confusion which exists regarding the significance of the words "infectious" and "contagious" is due in large part to the fact that they have grown into a usage varying somewhat from that which adhered to them originally. For the same reason the definitions found in the dictionaries are unsatisfactory; in fact, these are behind the times regarding these words. Good usage is the lexicographer's authority, and in case a certain usage has come to be universal among leading men, it may be considered as good usage.

The confusion may be cleared by holding fast to this statement: the term infectious is applied to all those diseases which are caused by parasites, particularly the microparasites, i. e., the bacteria, certain fungi and the protozoa. "Infection" is also used synonymously with "infectious disease." The term is not so commonly applied to conditions in which the body is invaded by the larger "macroparasites," as the intestinal worms, but it would not be improper to use it in such cases. When the surface of the body is the point of attack for such parasites as the pediculi, "infestation" is commonly used, but the distinction between "infection" and "infestation" is artificial to a certain extent. The term infectious, therefore, refers to the etiologic character of the disease.

To place the word "contagious" in its proper relationship to "infectious," we may say that infectious diseases may be divided into two classes: those which are contagious and those which are not. A contagious disease is one which is transmitted with greater or less ease from the patient to another person when the two come into direct or indirect contact. The word contagious therefore refers to a method of transmission which prevails among some infectious diseases. In earlier times the word "contagion" was used vaguely in referring to the unknown cause of a contagious disease, and the disease itself was also called a contagion; for example, a person was said to be suffering from a contagion. This use of the word does not prevail in modern literature. "Contagion" as now used refers to the act of transmission of an infectious disease by the medium of contact. It seems uncalled for, in relation to the question asked, to cite illustrations showing that there are all grades of contagiousness, or to enumerate the various vehicles of transmission which are utilized by the contagious infections.

METHOD OF DISGUISING TASTE OF ARTIFICIAL CARLSBAD SALTS

To the Editor:—In adding a teaspoonful of artificial Carlsbad salts to a glassful of water as a laxative, what could be added to this mixture to make it palatable, or reasonably so?

GEORGE H. WERK, Cincinnati.

ANSWER.—The addition of a little sugar and lemon juice often effectually hides the disagreeable taste of the salts contained in artificial Carlsbad salts. Many patients, however, take such salts largely diluted with water in preference to any other method of administration. This applies to salty substances in general. While disagreeable in concentrated solution, they often become comparatively pleasant when sufficiently diluted.

The Public Service

Army Changes

Memorandum of changes of stations and duties of medical officers, U. S. Army, week ending Jan. 30, 1909:

Greenleaf, H. S., major, granted leave of absence for one month.
Shook, J. R., capt., granted leave of absence for one month.
Koerper, C. E., capt., granted leave of absence for 14 days.
Clarke, J. T., major, granted an extension of 15 days to his leave of absence.
Bevans, J. L., capt., granted leave of absence for two months.
Church, J. R., major, granted leave of absence for one month.
Winter, F. A., major, ordered to accompany troops to San Francisco.
Kendall, W. P., major, ordered to accompany troops from Fort Ethan Allen, Vt., to Fort Leavenworth, Kan., and return to station.
Davis, W. R., capt., granted leave of absence for 15 days.
Coffey, A. M., M. R. C., ordered from Fort Sam Houston, Texas, to Fort Sill, Okla., for temporary duty.
Jordan, E. H., M. R. C., granted leave of absence for two months, with permision to return to the United States via Europe.
Wertenbaker, C. L., M. R. C., granted leave of absence for 10 days.
Stallman, G. E., dent.-surg., left Fort Sam Houston, Texas, for duty at Fort McIntosh, Texas.
Voorhies, H. G., dent.-surg., ordered to a month's duty at each of these posts: Fort Lincoln, N. D.; Fort Yellowstone, Wyo.; Fort William Henry Harrison, Mont.; Fort Missoula, Mont., and Fort Assiniboine, Mont.

Navy Changes

Changes in the Medical Corps, U. S. Navy, for the week ending Jan. 30, 1909.

Hart, G. G., acting asst.-surgeon, appointment dated Jan. 10, 1909, revoked.

Stokes, C. F., surgeon, ordered to report to the Surgeon General of the Navy for special temporary duty in connection with repair of hospital ships.

Huffman, O. V., asst.-surgeon, discharged from treatment at the Naval Medical School Hospital, Washington, D. C., granted sick leave for three months, and resignation accepted to take effect April 26, 1909.

May, H. A., P. A. surgeon, detached from duty with flotilla of light-house vessels, San Francisco, and ordered to the Pacific Fleet, sailing from San Francisco, Feb. 5.

Old, E. H. H., detached from the Naval Hospital, Norfolk, Va., and ordered to temporary duty at the Navy Yard, Washington, D. C., and to additional duty on board the *Mayflower*.

Thomas, G. F., acting asst.-surgeon, detached from the Naval Hospital, Boston, and ordered to the Naval Hospital, Norfolk, Va.

Public Health and Marine-Hospital Service

List of changes of stations and duties of commissioned and other officers of the Public Health and Marine-Hospital Service for the seven days ended Jan. 27, 1909:

Young, G. B., surgeon, directed to attend the meeting of the Lake Michigan Water Commission to be held at Indiana Harbor, Ind., Jan. 23, 1909.

Cumming, Hugh S., P. A. surgeon, directed to proceed to Nagasaki, Japan, upon special temporary duty.

Fricks, L. D., P. A. surgeon, leave of absence granted Jan. 8, 1909, for 7 days from Jan. 9, 1909, amended to read 5 days from Jan. 9, 1909.

Sweet, Ernest A., P. A. surgeon, granted 7 days' leave of absence from Dec. 25, 1908, under paragraph 189, Service Regulations.

Stiles, C. W., chief division of zoology, hygienic laboratory, granted three days' extension of annual leave on account of sickness from Jan. 12, 1909.

Blount, B. B., Acting-asst. surgeon, granted 30 days' leave of absence from Feb. 1, 1909.

Bussey, Joseph C., Acting-asst. surgeon, granted 7 days' leave of absence, under paragraph 191, Service Regulations.

Hamilton, H. J., Acting-asst. surgeon, granted 30 days' leave of absence from Jan. 27, 1909.

Moncure, J. A., Acting-asst. surgeon, granted 30 days' leave of absence from Feb. 18, 1909.

Health Reports

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended Jan. 29, 1909:

SMALLPOX—UNITED STATES

Alabama: Tuscaloosa, Dec. 1-31, 20 cases; Mobile, Jan. 21, 1 case.
Arkansas: Texarkana, Nov. 22-Jan. 11, 10 cases.
California: Los Angeles, Jan. 2-9, 2 cases; San Francisco, 2 cases.
Illinois: Browning, Oct. 25-Jan. 20, 75 cases; Centralia, July 1-Jan. 20, 50 cases; Chicago, Jan. 2-9, 1 case; Danville, Jan. 10-17, 1 case; Ladd, Nov. 1-30, 4 cases; Taylorville, Jan. 18, 40 cases.
Indiana: Evansville, Jan. 9-16, 2 cases; Lafayette, Jan. 11-18, 12 cases.
Kansas: Atchison, Jan. 9-16, 1 case; Kansas City, Jan. 2-16, 2 cases; Topeka, Dec. 3-10, 10 cases.
Kentucky: Covington, Jan. 9-16, 2 cases; Lawrenceburg, Oct. 1-18, 200 cases, 1 death; Lexington, Jan. 2-16, 9 cases.
Louisiana: Arcadia Parish, Dec. 20-Jan. 11, 30 cases; New Orleans, Jan. 2-16, 4 cases.
Maine: Van Buren, Jan. 9-16, 7 cases.
Michigan: Detroit, Jan. 9-16, 1 case.
Missouri: St. Louis, Jan. 9-16, 1 case.
Montana: Butte, Dec. 15-Jan. 12, 12 cases.
Nebraska: South Omaha, Jan. 9-16, 1 case.
North Carolina: Wilmington, Jan. 22, 1 case, imported.
Tennessee: Green County, to Jan. 22, 103 cases; Knoxville, Jan. 9-16, 1 case; Memphis, Jan. 18, 1 case, imported; Nashville, Jan. 9-16, 4 cases.

Texas: Cotulla, Jan. 25, present; Laredo, Jan. 25, present; San Antonio, Jan. 2-16, 21 cases.
Vermont: East Dover, Jan. 21, 10 cases; Newfane, Jan. 11, 3 cases; West Dunnerston, Jan. 21, 1 case.
Virginia: Lynchburg, Jan. 9-16, 1, Imported.
Wisconsin: La Crosse, Jan. 9-16.

SMALLPOX—FOREIGN

Brazil: Bahia, Nov. 14-Dec. 5, 61 cases, 4 deaths.
Canada: Halifax, Nov. 2-9, 2 cases; Winnipeg, Jan. 4-11, 2 cases.
Egypt: Alexandria, Dec. 2-9, 1 death; Cairo, Dec. 15-23, 5 cases, 8 deaths.
India: Bombay, Dec. 15-22, 3 deaths.
Java: Batavia, Dec. 5-12, 4 cases, 1 death.
Mexico: Guadalajara, Jan. 1-7, 1 death; Monterey, Jan. 3-10, 1 death; Salina Cruz, Jan. 1-15, 5 deaths; Veracruz, Dec. 12-26, 2 cases, 2 deaths; Yucatan, Dec. 1-31, 1 case; Camp Mengel.
New Foundland: St. Johns, Jan. 9-16, 3 cases.
Peru: Lima, Dec. 19, 3 cases.
Porto Rico: Mayaguez, Dec. 26-Jan. 2, 1 case.
Portugal: Lisbon, Jan. 5-12, 3 cases.
Russia: St. Petersburg, Dec. 12-19, 8 cases, 2 deaths.
Spain: Valencia, Dec. 19-26, 1 case.
Turkey: Constantinople, Dec. 20-27, 6 deaths.

YELLOW FEVER

Barbados: Bridgetown and vicinity, Dec. 29-Jan. 10, 4 cases, 3 deaths.
Ecuador: Guayaquil, Dec. 12-19, 1 death.
Mexico: Mexcanu, Jan. 2-9, 1 case; Merida, 1 death.
Trinidad: Port of Spain: Jan. 20, 1 death.
Brazil: Bahia, Nov. 21-Dec. 5, 3 cases, 2 deaths.

CHOLERA

India: Bombay, Dec. 15-22, 23 deaths; Madras, Dec. 12-18, 3 deaths; Rangoon, Dec. 5-12, 1 death.
Russia: General, Nov. 15-Jan. 2, 2,976 cases, 1,208 deaths; St. Petersburg, Dec. 23-31, 114 cases, 43 deaths.
Straits Settlements: Singapore, Nov. 29-Dec. 5, 29 deaths.

PLAGUE

Brazil: Bahia, Nov. 14-Dec. 5, 12 cases 6 deaths.
China: Hongkong, Nov. 7-14, 1 case, 1 death.
Ecuador: Guayaquil, Dec. 12-19, 1 death; Milagro, present.
India: General, Dec. 5-12, 2,044 cases, 1,588 deaths; Bombay, Dec. 15-22, 4 deaths.
Peru: General, Dec. 4-17, 60 cases, 20 deaths; Lima, 9 cases, 3 deaths.
Straits Settlements: Singapore, Nov. 25-Dec. 5, 1 death.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF ORGANIZATION, POSTGRADUATE WORK, CONTRACT PRACTICE, INSURANCE FEES, LEGISLATION, ETC.

MEDICAL LEGISLATION

Naval Medical Reserve Corps

Senator Gallagher has introduced amendments to the house bill (26394) of appropriations for the naval service for the coming year, to provide for a medical reserve corps for the Navy, similar to that provided for the Army, and also to provide for the reorganization of the hospital corps of the Navy. A bill to provide for the reorganization of the hospital corps was introduced into the last Congress and was endorsed by the Conference on Medical Legislation at its Chicago meeting in Dece. ber, 1907. The proposed medical reserve corps for the Navy was discussed at the Conference on Medical Legislation recently held at Washington and was endorsed. The amendments proposed by Senator Gallagher are in the interest of efficiency of the medical department of the Navy, and should be adopted.

Proposed State Legislation

The following bills, which have been introduced into the various state legislatures, have been reported to the Bureau of Medical Legislation:

KANSAS

House Bill 301, to authorize an annual conference of state and local boards of health; House Bill 124, to provide for the regulation and inspection of hotels and public lodging houses and to vest the authority for its enforcement in the State Board of Health; S. B. 135, to amend the pure food law of 1907. This bill passed the Senate on January 22 and is now in the House.

MINNESOTA

H. F. 145, introduced by Dr. J. A. Gates, would regulate the manufacture and sale of "patent" and proprietary medicines. This bill would provide that each package of "patent or proprietary medicine" manufactured, sold or given away in the state shall contain the complete and correct formula on the outside wrapper and on the bottle or box. Any medicine containing more than a minimum quantity of morphin, heroin, cocain, chloral hydrate, belladonna, cotton-root, ergot or any other abortifacient, must show an additional poison label. The State Board of Health is to be authorized to analyze all preparations offered for sale in the state. A fine of from $50 to $500 and imprisonment for from thirty days to six months is to be a penalty for violation of the act. H. F. 169 would forbid objectionable or obscene advertising on the part of any person or corporation, either through newspapers, pamphlets, or by any other means. The production of any such advertisements is to be made prima facie evidence of the guilt of the persons advertising. H. F. 145, introduced by Dr. Gates, seeks to prevent the manufacture and sale of adulterated or misbranded drugs. The definition of adulteration and misbranding is as given in the national Food and Drugs Act.

NEBRASKA

S. F. 18 is an act to authorize the practice of osteopathy in Nebraska and to provide for a board of osteopath examiners. It is similar to former osteopath bills, except that it states specifically that licensed osteopaths shall have the right to report births and deaths the same as "physicians of schools of medicine," and that such reports shall be accepted by the officers of the departments to whom they are made. Evidently, those desiring osteopathic legislation have profited by their recent experience in New York. S. F. 66 is to provide for the registration of marriage statistics, and S. F. 116 for the equipment and maintenance of a State Board of Health bacteriologic laboratory. H. R. 94 is the same bill entered on the house calendar. H. F. 140 is for the sanitary regulation of bakeries, creameries, packing houses, slaughter houses, dairies, canneries, cheese factories, confectionery factories, restaurants, hotels, groceries and meat markets, placing the sanitary regulation of all buildings used for such purposes in the hands of the state food, drug and dairy commissioners. Section 4 of this bill will require that all doors and windows of all buildings in which food of any sort is handled be fitted with self-closing screen doors and with wire window screens. Section 6 will provide for cuspidors and regulates their use. Section 7 will forbid the use, as a living or sleeping room, of any place where food is prepared, served or sold. Section 8 will forbid the employment in any factory of any person afflicted with any infectious diseases. S. F. 142 is to regulate professional nursing, to authorize the State Board of Health to make such rules and regulations as may be necessary and to forbid any person to be known as a registered nurse without a certificate from the State Board of Health. H. R. 70 is a similar bill in the House.

NORTH DAKOTA

S. B. 8 is to regulate the sale of intoxicating liquors for medicinal, sacramental, scientific and mechanical purposes and to require a person who wishes to secure intoxicating liquors from a druggist, to present a written or printed prescription from a legally qualified physician.

NEW HAMPSHIRE

H. R. 23 is to provide for the equipment and furnishing of a state sanatorium for consumptives; H. B. 48, to forbid the manufacture and sale of any preparation containing cocain; H. B. 107, to provide for the cleanliness of receptacles used for the delivery of milk and cream for domestic purposes; H. B. 109, to specify the percentage of fat which must be in marketable milk, and H. B. 110, to regulate the manufacture and sale of ice cream.

OHIO

S. B. 3 is a bill to regulate the practice of optometry which is defined in about the same terms as in the Vermont law, mentioned last week. This bill is practically the same as all of the others introduced in the last two or three years in the various state legislatures, and is open to the same objections. It should not be allowed to become a law under any

circumstances, as it is class legislation, is contrary to the interests of the public, and places the state in the position of endorsing unqualified and incompetent individuals whom the public accepts as properly qualified. This movement for the passage of this law in all of the states is the result of a concerted effort which has been going on for the last two years. The bills and the efforts to secure their passage in the various state legislatures all emanate from a central source.

PENNSYLVANIA

The Committee on Inebriate Hospital of the Medical Society of the State of Pennsylvania has introduced a bill into the state legislature to provide for the erection of a state hospital for the detention and treatment of inebriates. A committee of six persons is to select the site and to erect such an institution; $15,000 is to be appropriated for land and $150,000 for buildings. A board of nine trustees is to be appointed after the erection of the building.

POSTGRADUATE COURSE FOR COUNTY SOCIETIES

DR. JOHN H. BLACKBURN, DIRECTOR
BOWLING GREEN, KENTUCKY

[The Director will be glad to furnish further information and literature to any county society desiring to take up the course.]

Seventh Month

General Subject for the Month, Normal and Pathologic Labor

First Weekly Meeting

ANATOMY

PELVIS

BONES: Ilium, wing, crest, spines, body; ischium, body, spine, tuberosity, ramus; pubis, body, spine, ramus; obturator foramen, sacrosciatic notch; sacrum, surfaces; coccyx.

LIGAMENTS: At symphysis pubis, sacro-iliac articulations, sacro-coccygeal articulations, sacro-sciatic ligaments, obturator membranes.

FALSE PELVIS: Boundaries, iliac crests, distances between spines, between crests.

TRUE PELVIS: Boundaries, form, portions. (a) Inlet, superior strait: shape, boundaries; diameters, conjugata vera, obstetric conjugate, diagonal conjugate, effect of Walcher position on each, external conjugate or Baudelocque, transverse, oblique. (b) Obstetric strait: Boundaries; diameters, anteroposterior, bisischiotic. (c) Outlet, inferior strait: Definition; diameters, anteroposterior, transverse. (d) Cavity: Depth, walls; diameters, anteroposterior, transverse.

INCLINATION OF PELVIS: Degree, variations, significance.

AXES OF PELVIS: Axis of inlet, of outlet, line of progression.

SOFT PARTS CONNECTED WITH BONY PELVIS.—(a)—In large pelvis: Muscles, iliacus, psoas; vessels; nerves. (b) In true pelvis: Pyriformis, obturator internus, origin, relations, fasciæ. Vessels and nerves. Bladder and rectum. (c) Pelvic floor and outlet: Levator ani, coccygeus, transversus perinei, sphincter ani, fasciæ and attachments. Effect of soft part on diameters in each plane of pelvis.

FETUS

HEAD: Regions, occiput, vertex, sinciput; bones; sutures, sagittal, transverse, lambdoid; fontanelles; diameters, occipito-mental; occipito-frontal; suboccipito-bregmatic, biparietal, bitemporal; circumferences, maximum, minimum.

TRUNK: Comparative size; bisacromial and sterno-dorsal diameters.

HIPS AND EXTREMITIES: Diameters, bicristal, bitrochanteric, dorso-pubic.

PRESENTATION AND POSITION OF FETUS

ATTITUDE.—Definition, causes.

PRESENTATION.—Definition, normal and abnormal, longitudinal and transverse, variations during pregnancy and labor. (1) Head: Frequency, causes; vertex, sinciput and brow, face. (2) Breech: Frequency, complete, knee, foot. (3) Trunk: Frequency, causes; shoulder, arms, etc.

POSITION.—Definition, points of fetus, of pelvis. (1) Vertex: L. O. A., L. O. T., L. O. P., R. O. P., R. O. T., R. O. A., (2) Face: Describe mento- positions (3) Breech: Sacro- positions.

DIAGNOSIS.—(a) Abdominal palpation, (b) vaginal touch, (c) auscultation.

Reference books for seventh month: Text-books of obstetrics by Edgar, Hirst, Jewett and Williams, and the American Text-Book of Obstetrics.

Marriages

RALPH S. CONE, M.D., to Miss Zoe Warner, both of Brooklyn, N. Y., recently.

JULIUS MICHAELIS, M.D., to Miss Ethel S. Thomas, both of Brooklyn, January 20.

JOHN WINSTER GREEN, M.D., Albion, Ind., to Miss Alice Westcott of Chicago, recently.

THOMAS H. WEIRICH, M.D., to Miss Sarah Duval, both of Wellsburg, W. Va., January 20.

A. ALDRIDGE MATTHEWS, M.D., Seattle, Wash., to Miss Eva Hopkins, at Seattle, January 27.

CARL H. WRIGHT, M.D., Yorktown, Ind., to Miss Josephine Barido, of Kane, Pa., January 26.

LUTHER S. MASON, M.D., Clover, Va., to Mrs. Annie Y. Cobb, of Danville, Va., January 20.

SIDNEY G. HANDS, M.D., Murdo, S. D., to Miss Edith Collins of Hopkinton, Iowa, January 15.

JAMES A. PEEPLES, M.D., Rising Sun, Md., to Miss Anna Hambleton, at Philadelphia, January 21.

WILLIAM HORACE RAINES, M.D., Dublin, Ga., to Miss Anna Estelle Mitchell, at Baltimore, January 20.

ARVID OUCHTERLONY TAYLOR, M.D., Maysville, Ky., to Miss Alma Collins Martin, at Canton, Mo., January 12.

RIEVES ANDREW MANKER, M.D., to Miss Anna J. Krauss, both of New York City, at Jersey City, January 17.

BRISCOE BALDWIN RANSOM, JR., M.D., Maplewood, N. J., to Miss Daisie Yarbrough of Staunton, Va., February 4.

ROY MASON SWEENEY, M.D., Kellyville, Okla., to Miss Annette Ivy Buser of Lockwood, Mo., at St. Louis, January 21.

Deaths

Thomas Morton Hills, M.D. Yale Medical School, New Haven, Conn., 1863; a member of the American Medical Association and Association of New York and New England Railway Surgeons; surgeon of the Twenty-seventh Connecticut Volunteer Infantry during the Civil War; local surgeon for the New York and New England; New York, New Haven and Hartford, and Central Vermont railroads; proprietor of the Hills Hospital; died at his home in Willimantic, Conn., January 23, from pneumonia, aged 69.

Clement W. Jordan, M.D. Medical College of Alabama, Mobile, 1875; of West Point, Miss.; a member of the Mississippi State Medical Association; president of the local board of U. S. pension examiners; while making a professional call January 2, was fired on by a young planter, who mistook him for a robber. The shooting caused the horse of Dr. Jordan to rear and fall back, inflicting injuries which caused his death a short time later, aged 54.

Oliver Wolcott Gibbs, M.D. College of Physicians and Surgeons, New York City, 1845; of Boston; a member of the United States Sanitary Commission during the Civil War; Rumford professor at Harvard University from 1863 to 1897, and emeritus professor thereafter; a charter member and once president of the National Academy of Sciences; died in Newport, R. I., December 9, aged 86.

Andrew Howell Halberstadt, M.D. University of Pennsylvania, Philadelphia, 1853; a member of the American Medical Association, and founder of the Schuylkill County Medical Society; acting assistant surgeon in the army during the Civil War; one of the founders and visiting surgeon to the Pottsville (Pa.) Hospital and president of the local board of

health since its organization; died suddenly at his home January 19, from acute gastritis, aged 77.

Joseph Greenberry Wolfe, M.D. Rush Medical College, Chicago, 1890; a member of the American Medical Association; professor and head of the department of pediatrics in the Chicago College of Medicine and Surgery, and physician to the Frances E. Willard Hospital; died from nephritis in that institution, January 28, five days after an operation for tonsillectomy, aged 48.

John Randolph Smith, M.D. Willamette University, Salem, Ore., 1878; a member of the Washington State Medical Association; a veteran of the Civil War; mayor of Vancouver from 1881 to 1888; coroner of Clarke county for several terms; and contract surgeon U. S. Army at Vancouver Barracks; died at his home January 7, from uremia, aged 64.

John Osborne Skinner, M.D. University of Iowa, Keokuk, 1855; a member of the Iowa State Medical Society, and a charter member of the Polk County Medical Society; surgeon of the Tenth Iowa Infantry during the Civil War; and one of the oldest practitioners of Des Moines; died at his home January 15, aged 84.

Silas C. Dove, M.D. Cincinnati College of Medicine and Surgery, 1879; a member of the Indiana State Medical Association; surgeon during the Civil War; for four terms coroner of Hamilton county; a member of the county board of health; died at his home in Westfield, Ind., January 18, from heart disease, aged 70.

Charles Haven Francis, M.D. Northwestern University, Chicago, 1901; of Reno, Nev.; a member of the American Medical Association and delegate from Nevada at the Chicago session; secretary of the Washoe County Medical Society; died at his home in New Lenox, Ill., January 14, from tuberculosis, aged 33.

Robert W. Young, M.D. Jefferson Medical College, Philadelphia, 1875; a member of the American Medical Association, and for several terms president of the Lehigh County Medical Society; local surgeon at Slatington for the Lehigh Valley Railroad; died at his home January 22, from pneumonia, aged 61.

John Walter Gray, M.D. New York University, New York City, 1898; of Summit, N. J.; first lieutenant and assistant surgeon of the Third and Fourth New Jersey Infantry, U. S. V. during the Spanish-American War; died at the home of his sister in Summit, January 22, from heart disease, aged 32.

John Ernest Capdau, M.D. Tulane University, New Orleans, 1897; a member of the American Medical Association; once a member of the State Board of Health, and one of the brightest young practitioners of New Orleans; died suddenly at his home, January 17, from heart disease, aged 33.

Joseph William Winters, M.D. Jefferson Medical College, Philadelphia, 1873; a member of the health board of lower Merion township, near Ardmore, Pa., and secretary of the school board for the same district; died at his home in Marion Square, January 15, from diphtheria, aged 68.

John Roberts Graves Howell, M.D. Atlanta (Ga.) Medical College, 1890; a member of the Medical Association of the State of Alabama; a member of the State Medical Board, and president of the Houston County National Bank; died at his home in Dothan, January 16, aged 48.

Omer C. Bowen, M.D. Eclectic Medical Institute, Cincinnati, 1866; a member of the Michigan State Medical Society; formerly supervisor and village president, and twice mayor of Manistique, Mich.; died suddenly at his home from heart disease, January 20, aged 68.

Edwin Henry Mallory, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1882; Jefferson Medical College, Philadelphia, 1891; a member of the Iowa State Medical Society; died at his home in Linden, Iowa, from pernicious anemia, January 5, aged 52.

A. F. Richardson, M.D. Memphis (Tenn.) Hospital Medical College, 1903; a member of the Mississippi State Medical Association, and of the State Board of Health; was shot and killed in front of his drug store in Sturgis, Miss., Dec. 24, 1908, aged 33.

Herman George Nierman, M.D. University of Michigan, Ann Arbor, 1892; of Fort Wayne, Ind.; a member of the American Medical Association; died January 31, at Fort Wayne, from peritonitis, following an operation made five days before, aged 38.

Albert H. Bowers, M.D. University College of Medicine, Richmond, Va., 1906; of Gold Hill, N. C.; died in St. Leo's Hospital, Greensboro, January 13, from malignant disease of the intestines, for which he underwent operation January 2, aged 28.

John W. Hayden, M.D. University of Iowa, Keokuk, 1866; a veteran of the Civil War; once a representative from Jefferson county in the Iowa legislature; died at his home in Fairfield, January 12, a day after a surgical operation, aged 69.

David Clarence Lewinthal, M.D. College of Physicians and Surgeons, New York City, 1889; a member of the American Medical Association and New York Academy of Medicine; died at his home in New York City, Dec. 14, 1908, aged 40.

Lowell H. Smith (license, Colo., 1890), for twenty-eight years a practitioner of Colorado; a veteran of the Civil War; from 1893 to 1897 treasurer of Boulder county; died at his home in Longmont, January 5, from diabetes, aged 76.

William Calvin James, M.D. Vanderbilt University, Nashville, Tenn., 1880; of Springfield, Mo.; a member of the Missouri State Medical Association; died in St. John's Hospital, Springfield, January 12, from nephritis, aged 50.

David Adams, M.D. Medical College of Georgia, Augusta, 1853; an honorary member of the Medical Society of the State of Alabama; died at his home in Pine Apple, Ala., December 20, aged 79.

Sheldon D. Lord, M.D. Bellevue Hospital Medical College, New York City, 1867; for several years health officer of Sackett's Harbor, N. Y.; died at the home of his son in that place, January 16, aged 67.

Samuel Ashmore, M.D. Cleveland Medical College, 1853; surgeon of the Fifteenth Kansas Volunteer Infantry throughout the Civil War; died at his home in North Topeka, Kan., January 19, aged 83.

A. P. Reeher, M.D. Homeopathic Hospital College, Cleveland, 1883; formerly a practitioner of Nanticoke, Pa.; died in Wilkes-Barre, January 6, from the effects of an overdose of morphin, aged 65.

Edith C. Boutin, M.D. Kansas City (Mo.) Homeopathic Medical College, 1895; died at her home in Coyle, Okla., recently, and was buried at her old home in Hampton, Iowa, January 24, aged 46.

Robert A. Holyoke, M.D. Rush Medical College, Chicago, 1885; of Lincoln, Neb.; and once coroner of Lancaster County; was found dead in his room in a hotel in Chicago, January 31.

Raoul LaRose, M.D. Laval University, Quebec, 1906; attending physician at the Montreal Home for Incurables; died January 5, at the Hôtel Dieu in that city, from typhoid fever, aged 27.

Donald Gillespie, M.D. University of the Victoria College, Cobourg, Ont., 1860; died at his home in Cannington, Ont., Dec. 22, 1908, from heart disease, aged 70.

William Launcelot Downing, M.D. Rush Medical College, Chicago, 1885; of Minneapolis, Minn.; died in a sanitarium at Kenilworth, Ill., recently, aged 45.

John H. W. Pomeroy, M.D. University of Wooster, Cleveland, Ohio, 1888; died at his home in Kipton, Ohio, January 20, from appendicitis, aged 44.

Henry O. Smith, M.D. Bennett Medical College, Chicago, 1883; of DeKalb, Ill.; died at the home of his sister in Yorkville, Ill., January 12, aged 56.

John Shotwell Townsend, M.D. Hahnemann Medical College, Philadelphia, 1874; died at his home in Baltimore, January 15, from heart disease, aged 59.

George P. Heithaus, M.D. St. Louis University, 1908; resident physician at the St. Louis Obstetric Dispensary; died January 16, in St. Louis.

Alfred J. Bigelow, M.D. University of Buffalo, N. Y., 1851; died at his home in New York City, January 22, from senile debility, aged 73.

Michael C. Moran, M.D. Rush Medical College, Chicago, 1882; died at his home in Chicago, January 24, from heart disease, aged 56.

Russell Hulbert, M.D. Yale Medical School, New Haven, 1898; of Middletown, Conn.; died in Hartford, Conn., Oct. 25, 1908, aged 33.

Calvin B. Scott (license, Iowa, 1886), for more than thirty years a practitioner of Fontanelle, Iowa; died January 19, aged 74.

Green Berry May, M.D. Tulane University, New Orleans, 1848; died at his home in Security, La., Nov. 26, 1908, aged 82.

Orson Dorcelia Benson, M.D. Rush Medical College, Chicago, 1879; of Omaha; died in a hospital in that city, January 15.

Chauncey Pond (license, Iowa, 1886), died at his home in Sioux Rapids, Iowa, July 19, 1908, from myelitis, aged 76.

J. W. Good, M.D. Columbus (Ohio) Medical College, 1880; of Hooper, Neb.; died in Kansas City, Mo., January 14.

Willard Osman Ruggles, M.D. Boston University, 1880; died at his home in Mattapan, Boston, January 10, aged 53.

Cyrus Campbell (license, Kan., 1904), was burned to death at his home in Cherryvale, Kan., January 15, aged 74.

Pardon Cargill, M.D. Eclectic Medical Institute, Cincinnati, 1865; died recently at his home in Dixon, Cal.

Society Proceedings

MEDICAL SOCIETY OF THE STATE OF NEW YORK

One Hundred and Third Annual Meeting, held at Albany, Jan. 26-27, 1909

The President, ARTHUR G. ROOT, Albany, in the Chair

The list of officers elected for the ensuing year was published in THE JOURNAL, Jan. 30, 1909, page 391.

Reports of the Secretary and the Treasurer

Dr. Wisner R. Townsend, New York, gave a detailed account of the number of members in good standing, the number dropped for non-payment of dues, the number of deaths and resignations, etc., as compared with the previous year, and read the honor list of county societies whose membership list is fully paid up for 1908.

The treasurer's report shows that the income for the year exceeded the expenditure by $642.46. This result, he stated, was accomplished by economies that in many instances were not to the advantage of the organization.

Approve Council Standard for Proprietaries

The society approved the resolutions unanimously passed at the session of the American Medical Association in Chicago, 1908, to the effect that advertisements of medical preparations should be restricted to those approved by the Council on Pharmacy and Chemistry, and that all state associations which now do, or hereafter may publish or control medical journals, be requested to restrict their advertisements to such approved preparations.

Report of the Committee on Publication

This committee announced the resignation of Dr. J. P. Warbasse, editor of the state journal, and the appointment of Dr. A. T. Bristow as acting editor. A detailed report of the expense of publishing the journal and directory was also given.

The carrying into effect of the resolutions in regard to the advertisement of medical preparations as adopted by the American Medical Association, it was stated, will entail a loss of about $3,000 per annum to the journal. However, the committee heartily endorses these resolutions.

Report of Committee on Public Health

This committee, Drs. John L. Heffron, J. S. Billings, Jr., and F. R. Ford made the following report: A letter was sent to the secretary of every county medical society asking on what subjects pertaining to public health the society had held discussions. Replies were received from all the societies. No questions pertaining to public health had been discussed in ten societies. The subjects considered in the others were as follows: Milk supply and milk inspection, by six societies; rabies, by one society; water supply, by one society; tuberculosis, by three societies; sewage disposal, by one society; typhoid fever, by two societies; national health officer, by two societies; smallpox, by two societies; vaccination, by two societies; county bacteriologic laboratory, by two societies. It was safe to say that no new subject had ever emanated from a public health board which had not first been brought before the people by the medical profession. It is the primary duty of members of the medical profession to consider carefully every subject that has a bearing on the human welfare, to arrive at a definite opinion, and then to impress that opinion on the citizens of the community in which the society is doing its work. Medical societies should be vigilant in seeing that the health ordinances in their force in making public sentiment sufficiently strong to influence can be exerted by the county societies. The remuneration of county medical officers is so absurdly insufficient that it sometimes attracts only those who are idle or politically inclined and who are not the best men for the purpose. There is a long roster of men who are heroically as well as scientifically serving their communities without any pay practically, while there are other men who draw big salaries and are of little use to the state department. The inauguration of county bacteriologic laboratories, which was first recommended by this committee, has been taken advantage of by many counties and well-equipped laboratories have been established. If the incoming national administration fails to establish a national department of health the public health committees of the state medical societies should add their force in making public sentiment sufficiently strong to force this movement through.

Report of the Committee on Legislation

This committee reported that during the 1908 session of the legislature 200 measures were introduced relating to medicine and public health and sanitation. About 50 of these passed both houses, received the governor's signature, and became laws.

Report of the Counsel

MR. JAMES TAYLOR LEWIS: During the past year several states have adopted malpractice defense along the lines on which this state society has been conducting it. The only verdict ever recorded against a member of the society since the existence of organized malpractice defense, was reversed and set aside by the unanimous decision of the Court of Appeals. Up to the present time, actions for alleged malpractice suits have been defended in thirty-nine counties of the state. There is evidence of increase in the abandoment of cases brought as soon as the state society appears by attorney for the defendant. This is perhaps the best proof of the effect which organized defense is creating in the minds of the public. Requests have come asking for the prosecution of illegal practitioners of medicine in several counties, and on one occasion I was requested to and did attend a coroner's inquest and conducted the medical examination before the coroner. These matters were brought up in connection with the discussion of the question as to whether it was not appropriate that the state society should extend its usefulness beyond the defense of malpractice actions. The percentage of blackmailing malpractice cases has decreased and the percentage of *bona fide* malpractice actions has increased. In 1906 there were 30 new cases, in 1907 22 new cases, and in 1908 21 new cases. The amount involved in malpractice actions since the organization of the defense is over $500,000. There are twenty-three cases not yet determined.

President's Address: The Physician and Lawmaking

DR. ARTHUR G. ROOT, Albany: To those who make a study of the statutes annually produced by the State of New York, the most cursory examination is convincing that in their preparation there is a painful lack of the intimate knowledge necessary to make them effective. The medical profession has steadily applied itself to the study of hygiene and to bringing before the legislature each year enactments for the purpose of promoting a proper understanding and application of the rules that pertain to this important subject. Proper sanitation is vastly more important to the public weal than the protection of property rights. Technical knowledge of the subject is absolutely necessary to the proper construction of a statute that will accomplish its object and be effective in protecting the life of the individual. No one but a physician would have been capable of constructing the laws relating to the quarantine of contagious diseases that have robbed these diseases of much of their terror. No class of men other than physicians would have been so inspired *pro bono publico* as to sacrifice time and effort to the extent necessary to place

them in the body of their laws and bring about their rigid enforcement. It is the object of the Medical Society of the State of New York that every individual who practices the learned and responsible profession of medicine should be properly equipped. No breadth of understanding or extent of technical knowledge can be too great for the physician who is properly equipped and who has the lives of others entrusted to his care. Recognizing this, the standard of requirements for those wishing to practice medicine has been steadily raised. The ridiculous claim that each school or system of medicine should have its separate examinations has been definitely and finally disallowed, and the public is thus permanently protected. The medical profession has preserved its own high standard and has protected the individual from useless and dangerous experimentation. In the domain of lawmaking the physician is the only natural and logical authority for subjects which affect life and health.

The Serum Treatment of Cerebrospinal Meningitis

DR. L. EMMETT HOLT, New York: The serum used was obtained from a horse which had been immunized by injections derived from many strains of meningococcus. After making the spinal puncture, as much fluid is withdrawn as will come away readily. The head of the patient should be lowered and his hips raised. It requires some experience to acquire the technic of puncture and injection. The dosage has not yet been measured and in giving the serum it was administered in cubic centimeters and not in units. The initial dose is 30 c.c. During the epidemic of 1905, the board of health reported 2,700 cases with a mortality of 73.5 per cent. This treatment has no value in cases not due to the meningococcus. Of 59 patients under 2 years of age, treated by the meningococcus serum, 34 recovered and 25 died, a mortality of 42.4 per cent. In 88, between the ages of 2 and 5, the mortality was 28.4 per cent.; in 104, between the ages of 5 and 10 years, the mortality was 15.4 per cent.; in 149, between 10 and 20 years, the mortality was 27.5 per cent.; in 123 patients 20 years and over the mortality was 39 per cent. The results according to the time of injection show that of those injected during the first three days under 2 years the mortality was 9 per cent.; of those from 2 to 5 years old, the mortality was 22.8 per cent.; of those between the ages of 5 and 10 the mortality was 12.3; of those between the ages of 10 and 20 the mortality was 24; and of those over 20 the mortality was 44.5 per cent. Those injected from the fourth to the seventh day showed a mortality of 21.1 per cent. for those under 2 years, 32.5 per cent., for those from 2 to 5 years, 16.2 per cent. for those between 5 and 10 years, 24 per cent. for those from 10 to 20 years, 37 per cent. for those 20 years or over. Of those injected after the seventh day the mortality was 71.4 for those under 2 years of age, 27 per cent. for those from 2 to 5 years, 22 per cent. for those from 5 to 10 years, 36.6 per cent. for those from 10 to 20 years, and 36.6 per cent. for those over 20 years or over.

Scarlatina

DR. H. A. FAIRBAIRN, Brooklyn: It is very difficult to define this disease and there are no diagnostic symptoms. The streptococcus plays an important part as an etiologic factor; the severity of the case is dependent on this and it is the basis of most of the complications. The differential leucocytic count is valuable as indicating the presence of pus in the absence of fever. The important factor in the treatment is the treatment of the skin and the toxemia. The use of antitoxin thus far has been directed against streptococcus poison. As the desquamation scales produce the disease long after the streptococcus has disappeared these should be used to obtain a vaccine or antitoxin. The streptococcus has not been found in them after a period of ninety days. Quarantine can be abandoned after the first thorough desquamation. As one attack generally protects the individual against others, this serum might be employed as an anti-scarlatina serum. The amount of blood required for such purpose in an individual case is small. It could frequently be obtained from a parent or other relative of the patient. Its use could be attended with no risk and might be of great advantage.

Physical Training of Children

DR. W. F. SEARS, Binghamton: Our school children are stoop-shouldered and show poor physical development. A better physical condition would promote a better mental development. The condition of the students of West Point and Annapolis show what it is possible to do. Four years of military training should be a requirement for citizenship. The care of the individual is a fundamental part of military training.

Glandular (Pfeiffer's) Fever

DR. W. B. GARLOCK, Little Falls: This is a sporadic or epidemic infectious disease, usually occurring in children between the ages of 2 and 10 years; it may occur in adults. Usually there is no general glandular involvement. Generally the liver and spleen are tender. There seems to be no tendency for the glands to break down. Laboratory tests have given negative results. There is a difference of opinion as to how the disease gains entrance, whether through the air passages or through the intestines. The prognosis is good and the only complications noticed have been glandular suppuration and congestion of the retina. These are rare. The treatment is symptomatic.

DISCUSSION

DR. LEONARD W. BACON, New Haven, Conn.: A case which occurred in my experience was that of a student and it looked like a case of Hodgkin's disease. The source of infection seemed to be from the intestinal tract. There was a toxic adenitis.

Improvement in the Technic of Cataract Extraction

DR. LUCIEN HOWE, Buffalo: I wish to call attention to the fixation of the globe and to a pair of forceps for accomplishing this. In holding the conjunctiva with forceps in order to steady the globe, tears of the conjunctiva often occur and the globe rolls upward. This accident may occur even when the conjunctiva is caught with double forceps in two places. In order to obviate this difficulty, a pair of double forceps has been so arranged as to grasp, not only the conjunctiva, but also the tendon of the external and internal rectus. In this way the globe is firmly held, which facilitates the puncture and counter puncture and the completion of the usual Graefe incision. In relation to the method of extracting the lens in cases in whica the lens presents properly in the wound, but can not be easily expelled, a pair of delicate forceps has been constructed with which to engage the lens, and to assist in drawing it forward. These forceps have been used a sufficient number of times to prove their usefulness.

Meller's Operation for the Removal of the Tear Sac: With Report of Cases

DR. A. EDWARD DAVIS, New York: A thorough knowledge of the anatomy of the lachrymal sac and the neighboring structures and a proper understanding of the relative position of the internal palpebral ligament and the anterior lachrymal crest are essential in performing a successful extirpation of the tear sac. As Dr. H. Knapp says: "Extirpation of the sac is as radical an operation as an amputation and should not be resorted to unless other methods of treatment have failed." Meller's operation is performed under cocain in a relatively short time, from thirty to forty minutes, and as a rule is bloodless. The incision is made to the nasal side and above the internal canthus and follows the anterior lachrymal crest about two centimeters; care being taken not to wound the cornea and thus cause infection. The incision is continued through the superficial fascia, the orbicular muscles and the deep fascia; this exposes the sac which can then be freed by cutting the lachrymal ducts with the scissors. After the sac is removed a few drops of cocain are instilled into the wound which is packed temporarily to stop all bleeding. The sac should be stretched over a probe to make sure of its complete removal. If any portion of the sac wall remains it should be dissected away before the wound is closed. The lachrymonasal duct should next be curetted by a small sharp chalazion curette, thus removing all particles of mucous membrane which might cause a continuance of the secretion. In closing the wound, particular care should be taken that the

wound edges are accurately approximated and the sutures not too tightly drawn. The operation for the removal of the tear sac is indicated first by chronic inflammation of the sac which can not be cured otherwise, or has resisted treatment for a long period in such conditions as: 1. Large mucocele, chronic lachrymal fistulæ, excepting congenital capillary fistulæ. 2. Chronic stricture of the nasal duct. 3. Chronic catarrhal dacryocystitis with repeated attacks of acute phlegmonous inflammation and ulcers of the cornea complicating this disease. 4. When an operation on the ball of the eye, as excision of a cataract paracentesis, etc., is to be made on the affected side. The local anesthesia is administered by means of a hypodermic syringe with a capacity of 1 cm. A 1 per cent. solution of cocain and adrenalin chlorid, 1 to 1,000, in the proportion of about 8 to 9 parts cocain to 1 or 2 parts adrenalin. One-third of this solution is injected under the skin in the line of the intended wound; one-third deep into the periosteum above the top of the lachrymal sac and one-third at the lower end of the sac deep in near the periosteum. The operation may be begun two or three minutes after the injections have been made. In the five cases reported there was healing by primary union with excellent results. In no case was there any hemorhage to speak of.

Ophthalmia Neonatorum

DR. JULIEN A. GEHRUNG, New York: The instillation of a 2 per cent. solution of silver nitrate into the eye is too irritating. I employ a modification of Crede's method when the head is born, and then later, when the child is washed and dressed, the eyes are cleansed with 1 per cent. silver nitrate solution and this is followed by salt solution or a solution of adrenalin-chlorid, 1 to 1,500. The latter acts as an anesthetic and neutralizes the action of the silver.

(To be continued)

COLLEGE OF PHYSICIANS OF PHILADELPHIA

Regular Meeting, held Jan. 6, 1909.

The President, DR. JAMES M. TYSON, in the Chair

The Roentgen Rays as an Aid in Diagnosis of Gastric Carcinoma

DR. GEORGE E. PFAHLER presented this paper, which was illustrated with about fifty lantern slides, showing carcinomata throughout the alimentary canal. These were made from twenty-nine different patients in whom carcinoma was demonstrated by means of the rays. This diagnosis was confirmed in most cases by autopsy, operation, or by the subsequent clinical course. The examinations were made both by means of the fluoroscope and the radiograph. The patient was given bismuth food, which was followed into and through the stomach. By watching its course and the subsequent peristaltic waves the evidences of carcinoma became apparent. He drew the following conclusions:

1. Gastric carcinoma is demonstrable when it will change the course of food through the stomach, when it will decrease the volume, or interfere with the peristaltic action; fix or displace the stomach; cause an indentation in the stomach wall or modify the rate of evacuation of the gastric contents.

2. With this aid, a diagnosis can be made earlier than has heretofore been possible.

3. As a rule, it is a tedious and expensive study when done thoroughly, and therefore each case first should be studied well clinically.

4. Great caution or thoroughness will have to be observed, or errors will be made and this valuable method of investigation will fall into discredit.

DISCUSSION

DR. JAMES M. ANDERS: If it is possible by this method to recognize gastric carcinoma at an earlier stage than heretofore, an important step has been taken. My experience with exploratory operations in early gastric carcinoma is that in all the cases the disease was found at operation to be well advanced; in the majority of cases it was too far advanced to offer hope of a cure by extirpation. I agree with Dr. Pfahler on the importance of giving to the Roentgenologists all available clinical data regarding the patients sent for examination. In one of my cases recently Dr. Pfahler was able to satisfy himself of the presence of a small mass before it could be felt.

DR. JUDSON DALAND: The recognition by the *x*-ray of esophageal tumors has been particularly brilliant. It is a surprising experience, after having looked at the question from the ordinary clinical standpoint to witness the behavior of the esophagus when it is the seat of stricture, and to note the kefir and bismuth trickling through the stricture and slowly dropping into the stomach. I believe we have in the radiograph and the fluoroscope valuable additional aid in the diagnosis of carcinomatous conditions in the alimentary tract. The negative value of these means, in my experience, also has been of great importance. This study by means of the *x*-ray is one that can not be adequately done except by an experienced man. It requires not only a trained eye, but an active cerebrum. It seems to me that this work must ever remain in the hands of the specialist.

DR. JOSEPH SAILER: My experience is that when carcinoma of the stomach can be diagnosed by the ordinary clinical means it is too late to operate.

DR. HENRY K. PANCOAST: I should like to emphasize particularly the importance of the radiographer being supplied with all possible data regarding the patient to be examined.

DR. CHARLES LESTER LEONARD: I believe that early examination of the stomach by the *x*-ray will lead to recognition of the disease when operation is of value.

DR. GEORGE E. PFAHLER: Of course, we will not be able to diagnose all carcinomas of the stomach; but I believe that in most cases with patience we can demonstrate carcinoma of the stomach before it is palpable, and that it is a step in advance of any of our clinical methods to-day.

CHICAGO MEDICAL SOCIETY

Regular Meeting, held Jan. 20, 1909

The President, DR. ALFRED C. COTTON, in the Chair

SYMPOSIUM ON SYPHILIS

The Value of the Spirochete in the Diagnosis of Syphilis, Especially the Primary Lesion

DR. B. C. CORBUS: During the past eight months I have examined 150 cases, including chancres, condylomata, mucous patches, papules, and inguinal glands. In no single instance when the organism was demonstrated has the subsequent course of the case shown the diagnosis to be wrong. So confident am I in regard to its specificity that I have formulated the following conclusions: 1. The spirochete is the true cause of syphilis, and its presence is equivalent to the diagnosis of syphilis, but its absence does not rule out syphilis. 2. By means of this method the spirochete may be demonstrated in all primary and secondary lesions of syphilis if the search is persistent. 3. The greatest value of Schaudinn's discovery is that it enables us to make a positive diagnosis from the primary lesion. 4. All primary lesions show the spirochete pallida. 5. The diagnosis should be made from the primary lesion. After the spirochetes have been demonstrated in the primary lesion, only harm can be done in waiting for other manifestations before beginning treatment.

The Serodiagnosis of Syphilis and Its Clinical Value

DR. WILLIAM J. BUTLER: The following results were obtained by me with the serum reaction in 150 cases of syphilis and suspected syphilis: 1. Of 10 cases in the primary stage, 100 per cent. gave a positive reaction. 2. Of 36 cases in the secondary stage, 95 per cent. gave a positive reaction. 3. Of 31 cases in the tertiary stage, 94 per cent. gave a positive reaction. 4. Of 16 latent cases, 56 per cent. gave a positive reaction. 5. Of 55 cases of visceral and parasyphilis, 76 per cent. gave a positive reaction. The large percentage of positive reactions obtained in the primary, secondary and ter-

tiary stages, with manifestations, is competent evidence of its clinical value as a diagnostic measure. A positive reaction in a patient presenting suspicious symptoms is decisive for, and a negative reaction carries considerable weight against syphilis as the etiologic factor. Patients under vigorous specific treatment will not only show a disappearance of symptoms, but ultimately in practically every case of the reaction. With this latter point one is constantly impressed in cases that are followed sufficiently long. In latent cases the patients will show quite uniformly between 50 and 60 per cent. of positive reactions. Among the cases of syphilis of internal organs examined by me were hepatic cirrhosis, aortic aneurism, specific arteritis, myocarditis, etc. Eighty per cent. of aortic aneurisms are said to have their origin in a specific meso-aortitis, and a considerable proportion of the diseases of the arteries are dependent on syphilis. The large percentage of positive reactions (from 95 to 98 per cent.) obtained in patients with syphilitic manifestations and the disappearance of the symptoms and ultimately of the reaction under rigid specific treatment, admit of the deduction that a positive reaction indicates active syphilis. A further support of this view is the coincidence that the number of cases that give the reaction corresponds with the frequency of internal luetic changes in syphilis coming to autopsy. Recognizing that a healing of external manifestations of syphilis does not carry any assurance as to internal conditions in this disease, and remembering that a positive serum reaction indicates active syphilis, its clinical value becomes strongly evident. By it we are placed in a position to know whether the syphilis is only apparently or really in abeyance. It is an indispensable index for specific treatment. The serum reaction is found in congenital as well as in acquired syphilis, and with equal constancy. It is obtained with the milk of syphilitic mothers as well as with the serum. The serum is the more satisfactory to work with.

The Cutaneous Symptoms of Syphilis

DR. JAMES NEVINS HYDE: I wish to content myself with depicting four pictures representing the external manifestations of the disease in types that were somewhat uncommon and rather unfamiliar to the average practitioner. The first picture includes a sketch of two classes of subjects, both exhibiting trivial symptoms of the disease in its early periods. In the one class these insignificant features may never be followed by grave symptoms; in the second class are included those subjects who subsequently suffer from severe ravages of the disease. The second picture includes the subjects of the disease who, after infection, displayed one vivid exanthem, and afterward exhibited no symptoms of the disorder. The third picture includes the cases in which there is abundant evidence that the symptoms commonly presented during what has been generally called the "secondary" period of the disease may be seen ten, twenty, and even more years after the date of infection. The fourth picture is made to include the rare, oddly developed and confusing symptoms of the disease, where errors in diagnosis have been so frequently committed. I cite instances in which the bite of an animal supposed to have eaten previously poisoned flesh has been followed by symptoms declared to be septicemic; and cases in which an erroneous diagnosis has been made of leprosy, elephantiasis Arabum, pigmented sarcoma, etc. The practitioner is encouraged with the assurance that a correct diagnosis can usually be reached after careful, scrupulous and exhaustive research.

Congenital Syphilis

DR. I. A. ABT: A considerable number of syphilitic infants, apparently well at birth, die of marasmus before the end of the first year. Babies with congenital syphilis show a high mortality. No primary lesions occur. For this reason it is assumed that the disease soon takes on the character of a severe general infection, and for the same reason it is thought that the virus of the disease must diffuse itself rapidly. Levaditi, Verse and others found it possible to demonstrate spirochete regularly and in large numbers in the organs of syphilitic infants. Many experienced clinicians doubt the occurrence of congenital syphilis years after birth without the occurrence of early symptoms, believing that the early symptoms were overlooked. Congenital syphilis is almost at once a general disease, and for this reason the lymph glands do not play the part that they do in acquired syphilis. The lymph nodes are seldom involved to any great extent, but the visceral organs in congenital syphilis are very soon involved. Hochsinger makes the point that circumscribed gummata are far less frequent than diffuse infiltration of organs in congenital syphilis. The skin lesions occur for the most part later than those of the internal organs. Children are not born with this skin condition. It usually occurs at the fourth week, or later, and does not occur after the first year. It is observed that the skin at the site of this lesion is smooth and glossy, due to the tension produced by infiltration of the underlying skin. The second form of skin lesion characteristic of congenital lues is pemphigus. The most frequent and characteristic localization is the palms and soles, though other parts of the body may be involved. Congenital syphilis attacks the mucous membrane of the nose, gastrointestinal tract, the liver, the nervous system, kidney, testicle, spleen, the thymus, etc. Particularly characteristic for the syphilitic processes of the new-born infant is the fact that the changes in the various tissues and organs proceed from the vascular degenerations. This is borne out by all the histologic and statistical studies.

Parasyphilitic Affections

DR. ARCHIBALD CHURCH: The parasyphilitic affections may be classified as follows: (1) Tabes; (2) paretic dementia, whether it occurs in adults as the result of acquired syphilis, or the juvenile form due to hereditary syphilis; (3) intermediate, combined lesions of the cord resulting in degeneration in some cases; (4) the condition of the brain in children, the result of inherited syphilis, which in some may be looked on as an agenesis, in others as a reduction of vitality, and in others as a tendency to degenerations. Fournier has insisted that locomotor ataxia is the result of syphilis. Erb gave great support to this contention, and some argument has been brought forward in relation to the subject of general paresis, so that we will find ourselves in good company if we take the position that without syphilis a man can not have locomotor ataxia or paretic dementia. In regard to paretic dementia, a crucial test was instituted by Kraft-Ebing, who took thirteen cases of general paresis in which there was neither evidence nor a history of syphilis, and inoculated all thirteen of these men with the juice of fresh and approved chancre. In no case was there any effect from the inoculation, and the only explanation of their immunity was the demonstrated fact of a preceding syphilis. Practically every one is agreed that nine out of ten cases of locomotor ataxia are postsyphilitic. Undoubtedly, with improved technic in reaction tests, cases of locomotor ataxia and paretic dementia will give evidence of antecedent syphilis. Without syphilis we can not have either locomotor ataxia or general paresis, according to English and French authorities.

Therapeutics of Syphilis

DR. WILLIAM L. BAUM: The treatment of syphilis should begin as soon as the diagnosis is definitely established by the finding of the spirochete in the primary sore or by other unmistakable evidences of the disease. In the treatment of syphilis there is but one remedy whose action we can consider in the way of a specific, and that is mercury. There are three methods of its administration: (1) The endermatic, (2) the hypodermatic, (3) the internal, or by the mouth. There is no single one plan of treatment which can be followed as a routine method to meet the requirements of every case of syphilis throughout its course; so that all of these methods are of value in particular cases under the proper conditions. I have arrived at the following conclusions: 1. The inunction method of treatment yields by far the best results. 2. The hypodermatic or intramuscular injection method is often valuable when a quick or overwhelming effect is to be produced, especially in cases where the special senses are threatened, and in certain severe nervous or old cutaneous

lesions; always to replace this method when the desired immediate result is produced. 3. The mixed treatment is, at times, of great value, especially in cases in which the glandular involvement is the most prominent factor. 4. The doses of iodids in eye lesions, in cerebral cases, and in ulcerations threatening destruction of the vocal cords, etc., should be large in the beginning and rapidly increased to the point of physiologic tolerance. 5. Every patient should be instructed to take a short course of treatment in the spring and fall of every year, as long as he lives, and that this, by keeping the vessels reasonably soft, will extend the expectation of life by many years.

Discussion on Syphilis

DR. MAXIMILIAN HERZOG: I agree with Dr. Corbus that it is important to find the spirochete in the primary and secondary lesions of syphilis as a means of early and certain diagnosis. Schaudinn, in 70 patients with primary and secondary syphilis, who had little or no treatment, found the spirochete 70 times in stained preparations. In 50 cases of the same type Sobernheim found spirochete in every case. Mulzer found the organism 20 times in 22 syphilitic cases, and Geraghty in 30 cases found the spirochete 27 times. I have examined material from about 30 cases, and of this number 7 were negative. These cases were either recognized as soft chancres, and were used as controls, or later on were found to be instances of soft chancres. Of the remaining 23 I found spirochetes in 18 primary and secondary lesions, and those patients in whom I did not find spirochetes had been under mercurial treatment for some time.

DR. F. G. HARRIS: While several methods have been brought forward to simplify reaction, none of them is so reliable as the reaction enunciated by Wassermann. The longer the infection has taken place, all things being equal, the stronger is this test. It is probable that the reaction which is present in the primary stage of syphilis depends on the dissemination of the infection. If chancre be taken early, a negative reaction is obtained. The presence of spirochetes remains the only reliable method for demonstrating the initial lesion. In the tertiary stage in from 90 to 96 per cent. of the cases there is a positive reaction; and in the parasyphilitic cases the same thing occurs. A patient with acute syphilitic endocarditis was treated at the Cook County Hospital in whom the diagnosis was made by the Wassermann test. The treatment of syphilis should be controlled by the Wassermann test.

DR. W. T. MEFFORD: Syphilis is more active and virulent in some people than in others. In some people the serum reaction will disappear after from 75 to 85 inunctions have been given, while in others it will take from 130 to 150 inunctions to do this. As to milk, I am not sure as to whether it would transmit syphilis to a non-syphilitic child or not.

DR. WILLIAM ALLEN PUSEY: Syphilis, as a rule, is not capricious and unusual in its course, but manifests itself in a certain matter-of-fact way. In rare instances, the so-called tertiary lesions occur in the secondary period. Occasionally there are some manifestations which may be called secondary, occurring late in the disease, but thanks to clinical medicine, ordinarily syphilis pursues a normal, chronologic sequential course. The cutaneous syphilides are among our most satisfactory and reliable standbys.

DR. O. S. ORMSBY: Several years ago I saw a man who supposedly had carcinoma of the penis, and in considering amputation the questions arose as to whether he had had any venereal disease previously, and whether amputation should be performed, or the patient treated with the *x*-ray. The lesion was found to be a typical instance of gummatous syphilid, and iodid of potash relieved him. Syphilis may occur at any age. It is a disorder which occurs in any person, no matter what the social position in life. In this country from 5 to 10 per cent. of extragenital chancres are observed on the lips, the tonsils, and other areas. Recently, in the practice of Dr. Hyde, I saw two patients with extragenital multiple lesions on the lip.

DR. DANIEL R. BROWER: There would not be so much tabes and paretic dementia if a longer time were given to the treatment of syphilis in the beginning. A great majority of patients have inadequate primary treatment. Among certain peoples paretic dementia and tabes are practically unknown, while in this country their frequency is recognized.

DR. L. E. SCHMIDT: Metchnikoff mentions a series of cases in which he inoculated monkeys with syphilitic virus and at the same time inoculated a series of patients. In one of these series the prophylactic treatment was favorable. This treatment consisted of calomel ointment, ten parts of calomel and twenty parts of lanolin. Knowing the cause of syphilis and watching the patients he had inoculated, in practically all instances in which the calomel ointment was used, within six hours after its use, the monkeys which were inoculated showed no signs of syphilis. With these results in mind, I think it advisable to consider the prophylactic treatment in every-day use.

PHILADELPHIA COUNTY MEDICAL SOCIETY

Public Meeting, Witherspoon Hall, Dec. 15, 1908

The President, DR. ALBERT M. EATON, in the Chair

THE PUBLIC HEALTH AND THE MEDICAL PROFESSION

Vaccination as a Protection to the Public

DR. JOSEPH MCFARLAND: There are three questions that an analysis of the question, "Why Does Not Vaccination Protect Against Smallpox?" includes:

1. Why is it that there is no country in the world, no matter how thoroughly vaccinated, in which some cases of smallpox and some deaths from smallpox do not occur?
2. Why is it that there are so few epidemics of smallpox in which a certain number of vaccinated people are not made ill and some do not die?
3. Why is it, in some places, Philadelphia being one, that a greater number of vaccinated individuals than unvaccinated may die?

These questions form the stock-in-trade of those who through ignorance, personal prejudice, hope of personal profit or willful blindness are led to antagonize the well-known virtues of this measure of preventive medicine. The operation of vaccination itself is of no significance, nor is the sore arm. If the child does not suffer from the disease no good is done. Failure to understand this is the source of much that is said against the subject. The disease leaves behind it a peculiar condition of the body, a changed physiologic condition which is known to us technically as immunity. Immunity, like every other subject in biology and physiology, is subject to change and variation. As in measles and typhoid, some individuals do suffer from several attacks, so after years most persons can be vaccinated again, or if this is not done, may contract smallpox. A few persons develop relapses one after another in typhoid, because they have no immunity; so a few are not benefited by vaccination. There is no country so well vaccinated that some deaths from smallpox do not occur, because some vaccinations miscarry; some individuals are not made immune; some have outlived the immunity. These are all susceptible, and may be infected if smallpox can reach them. The danger of its reaching them is infinitely less if the susceptible are few in number. There are few epidemics in which some vaccinated individuals do not contract the disease. Certainly, those who though vaccinated have outlived the immunity are in much the same condition as those never vaccinated. In some places, more vaccinated than unvaccinated persons die. This is inevitable when the number of vaccinated greatly exceeds the unvaccinated, but the vaccination of the majority is inefficient. I appeal to every fair-minded individual to endorse the absolute necessity of more strict and thorough enforcement of vaccination so that the number of the unprotected shall be reduced to a minimum.

Vaccination as a Protection to the Public

PROF. EDWIN J. HOUSTON: It seems almost incredible in view of the overwhelming evidence from practically all parts of the world of the advantages to be derived from successful vaccination as a preventive against smallpox, that intelligent people should be found who are willing not only to take

the risk for themselves of failing to insure this protection, but even to assume the grave responsibility of urging others to follow in their footsteps. I can not but think that much of this opposition comes from ignorance, not only of the danger existing in smallpox and the loathsomeness of the disease, but also of the almost certainty with which the disease can be contracted by exposure when not protected by vaccination. With other scientific men, I claim the right to read data and make my own conclusions, and I certainly am of the opinion that there never was a discovery so great as Jenner's, and never so great a boon given to the world as that which has practically stamped out of existence the most dreadful scourge the world has ever known. Before the publication in 1798 of Jenner's great discovery of vaccination, smallpox attacked from 85 to 95 people out of every 100, and of those attacked an immense number died. In Germany, where vaccination is compulsory, an epidemic of smallpox is unknown. During 1897, there were but five deaths from smallpox in the entire German empire. The population of Japan is nearly 47,000,000, and yet the number of deaths from smallpox was but four in 1901 and six in 1903. The stringent compulsory vaccination laws of Japan require a first vaccination within the first ten months of life, a second at the sixth year and a third at the tenth year. The United States, by its sanitary regulations, has practically stamped out smallpox in the Philippines. It can be shown that practically all the eminent physicians of this country are believers in vaccination, the disbelievers being few in number and found mainly outside of scientific circles. Moreover, the statement that the great medical schools of the world do not believe in vaccination is not borne out by facts. In 1907, the faculties of the medical colleges in Philadelphia passed resolutions affirming their belief in the efficacy of vaccination and urging that the present vaccination laws be left alone. Some time ago the president of one of the cotton mills in the South, in which I am interested, asked me if I could do anything to set the operatives right on the subject of smallpox. I wrote a circular, putting into plain English, the facts. Following this, instead of being opposed to vaccination, not only the people in that mill, but in the adjoining mills, insisted on being vaccinated. Dr. William M. Welch states that in every epidemic of smallpox occurring in Philadelphia within the past thirty years, instances have been observed of whole families being removed to the Municipal Hospital on account of the outbreak of the disease in these families; that in all such instances the unvaccinated children often died, while those who were vaccinated remained perfectly exempt, although living, eating and sleeping in the infected atmosphere for several weeks. The present vaccination laws in Pennsylvania are not compulsory. They, however, restrict the educational privileges of the schools to children who are vaccinated. Except in a few districts, the law appears to be satisfactory to the people. The antivaccinationists should carefully consider the grave responsibility they are assuming. In Philadelphia, in the epidemic of 1901-1908, about 5,000 persons were attacked, of whom 500 died, but not one had been successfully vaccinated within ten years.

Medical Legislation as a Benefit to the Public

DR. GEORGE W. WAGONER, President of the Medical Society of the State of Pennsylvania: I shall consider some features of the Proposed Act to Regulate the Practice of Medicine, and in so doing I shall strive to eliminate that bias of mind which the training and associations of thirty years can not help but create. The "whereas" introducing the bill contains the only reasons that can be legally given for regulation, and the justification of the restrictions sought to be thrown about the practice of medicine:

> WHEREAS, The safety of the public is endangered by incompetent physicians and surgeons and due regard for public health and the preservation of human life demands that none but competent and properly qualified physicians and surgeons be allowed to practice their profession.

If the safety of the public is endangered by incompetent physicians and surgeons, then the state has an undoubted right, and it is its duty, by the exercise of its police power, to regulate and control every individual and thing that may bring danger and harm to its citizens. But the regulations must bear equally on all persons. The next questions to be answered are: What constitutes the practice of medicine and who shall be classed as practitioners? The following definition of the practice of medicine taken from the New York Medical Practice Act, but slightly modified, seems to me to be definite, fair and comprehensive, and I would favor its incorporation in our act:

> "A person practices medicine within the meaning of this act who holds himself or herself out as being able to diagnose, treat, operate or prescribe for any human disease, pain, injury, deformity or physical condition, and who shall either offer or undertake, whether with or without drugs or medicines and whether with or without fee therefor, by any means or method, to diagnose, treat, operate, or prescribe for any human disease, pain, injury, deformity or physical condition."

The most difficult phase of the problem is: How shall the state prove the qualifications of individuals desiring to practice medicine? If fundamental, undisputed, medical knowledge renders an individual safe in his practice on the public, why should the state concern itself with non-essential sectarian knowledge? I am of the opinion that the state's duty ends with the examination concerning facts, and it becomes inquisitorial and offensive when it undertakes to gauge opinions and theories according to an arbitrary standard. I would, therefore, exclude from the state's examination every subject which has given rise to sectarianism in medicine. If physicians are equal before the law, why should we demand that those who shall compose the Board of Examiners shall be tagged with certain names to indicate their peculiar faith, and that not more than a certain number bearing a similar tag shall be members of it? The proposed act provides for the creation of a body known as the medical council, the actual duties of which properly belong to an authoritative board of examiners. If sectarianism is in fact and by inference excluded from the medical act, there can be no just reason for the creation of a medical council. It should therefore be stricken from a general law that ignores the existence of classes. I know the arguments of political expediency that are urged in justification of its creation, but the ideal law is not founded on expediency, but on equal rights to all, special privileges to none. There are a number of other things that the act must provide for—preliminary education, scientific education, whether or not there shall be reciprocity with other states or a state, revocation of licenses for cause, and all the details of procedure necessary to make it consistent, legal and practical. As these questions are in no way modified by sectarianism there should be no difficulty in drafting general provisions to cover each point. I maintain that an act regulating the practice of medicine must be clearly in the interest of the public health. It must be general legislation, in no sense must it be class legislation. The principles underlying such an Act must be true, and founded on the facts of modern experience and culture.

A Layman's View of Medical Legislation

SAMUEL SCOVILLE, JR., ESQ: I represent to-night, not the doctors but the doctored, not the prominent physicians but the patient patients, the laymen. We laymen have personal and important reasons for our interest in this great movement: It is our appendices that are being removed right and left—mostly from the right; it is our stomachs, livers and lungs and other internal bric-a-brac that suffer; it is we who have la grippe and bubonic plague and beriberi. The subject interests us laymen as a matter of life and death. The sick man is vitally, wholly, unreservedly and unconditionally interested in the standard of efficiency in the medical profession. Regarding the bill itself, as I understand the situation now, an embryo doctor has his choice of entering the profession in three ways: He may pass the allopathic examination, he may pass the homeopathic examination, and if he fails in both of these he has an unfailing hope in the eclectic examination. If only those passing the eclectic examination would practice eclecticism, whatever that may be, the evil would not be so great; but, instantly, on passing that examination they are turned out to prey on the defenseless community as allopathists, homeopathists, or any other kind

of "ists." The same situation used to confront us lawyers in New York in connection with our ba. examinations. There are two practical suggestions which I have to make in regard to securing the passage of this proposed legislation: 1. We can not commence work too soon. 2. The bill has to pass through an all powerful and all ignorant institution known as a committee. I have frequently seen bills which I have fathered come out of the committee torture chamber so disheveled and dismembered and differently clothed that it was with great difficulty that I recognized my own offspring. In this bill, if we are able to preserve the spinal column intact, we should be more than satisfied. Let us all work together to have the divine science of healing represented by masters, not by apprentices.

Science and the Public Health

DR. D. J. MCCARTHY: The methods of investigation which have been used by the medical profession and which have been subject to criticism are not the growth of a year or of ten years. They do not depend entirely on the question of animal experimentation or on any one single method, but on a variety of methods of investigation and on scientific training requiring years of study here and abroad. Antivivisectionists state that tuberculosis can be controlled by proper nutrition, but they forget that the whole basis for the knowledge of the control of this disease depends on animal experimentation. To determine whether or not any great pain is produced on the animals in experimentation any one may go into the laboratory of any large hospital and observe these investigations. The question of the necessity of this experimental work in the teaching of students is a matter which ought to be left to the medical profession. Practically all the investigation of diseases of the infectious group, affections of the cardiac system, and of the gastrointestinal tract depends on this line of experimentation. Experimentation on the brain in lower animals showed that the various parts of the brain control different parts of the body, and made it possible for the surgeon to remove the diseased area and so preserve a man's mental power. Such facts can be well used by the medical profession in enlightening the lay public on methods of scientific thought.

Experiments on Animals

PROF. HENRY H. DONALDSON: My conviction is that for the progress of biology and medicine experiments on animals are essential. In the discussion on the right to experiment with animals and on the alleged uselessness of this practice, investigators have been obliged to defend themselves against attacks from a small but active group in the community which claims that such experimentation is both cruel and unnecessary, and therefore should be prohibited, or against a somewhat larger group who have demanded regulations in order to prevent supposed abuses. It should be remembered that the investigators who conduct this work form a selected group and represent one of the three learned professions, every one of which professions has always had the responsibility of dealing with life and death. The members of this group claim the privilege of judging for themselves on matters touching their special work. In the end they will be judged by what they can return to the community. These returns consist already not only in various means of protection from disease or for its immediate cure, but in the prolongation and betterment of life and a clearer understanding of both the ethical and economic value of good health. In the arguments presented for legislation on this matter a strong emotional bias is often shown. We recognize that experimental work is a serious affair and to be considered in all soberness, since in the last instance it involves the power of life and death. Experiments of this sort are carried on by trained investigators, medical men and workers in biology, for definite purposes and with definite ends in view. The class of irresponsible persons for whose actions restraint is sought has not been shown to exist in connection with our laboratories. Should the evidence for deliberate cruelty appear to be good I would ask those who are forming their opinion to inquire whether the case is not outside of experimental work and a case for which the present laws protecting animals from cruelty are adequate. In the laboratories where experimental work is carried on, anesthetics are given to animals as they would be to human beings. Operations in which anesthetics can not be used are very rare and still more rarely are they practiced. I have never seen any. Those in charge of laboratories feel strongly the responsibility which this sort of work entails. It is only after a well-grounded public opinion has been formed that experimental medicine can be relieved from these attacks which threaten its advance, an advance which can be shown to increase the welfare and efficiency of the people as a whole.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

KANSAS: Topeka, Feb. 9. Sec., Dr. R. A. Light, Chanute.
WYOMING: Cheyenne, Feb. 10-12. Sec., Dr. S. B. Miller, Laramie.

Medical Education and Nostrums, Fourth Letter

The following is the fourth of a series of letters issued jointly by the Council on Medical Education and the Committee on Medical Teaching of the Council on Pharmacy and Chemistry. With it was sent a copy of the pamphlet, "The Propaganda for Reform in Proprietary Medicines:"

To Medical Teachers:—This letter treats of the immediate causes of the prescribing of nostrums.

The underlying causes of nostrum-prescribing are our own indifference, our indolence and our ignorance. The direct cause, however, is the exploitation of this indifference by the nostrum-maker and his agents; the systematic duping of physicians by every trick and device which promises success. We can not guard ourselves too strongly against these practices. The exposures published in the Pharmacology columns of THE JOURNAL of the American Medical Association furnish liberal illustrations for this text. A reprint of some of these has been mailed to you. However, there are many apparently more innocent, but none the less vicious, devices, such as the following:

(a) Laudatory notices of nostrums are obtained from well-known men and these are caused to appear in journals and even in text-books.

(b) Real, or pretended, clinical and pharmacologic researches are reported in which the results are fabricated, or twisted to suit the needs of the nostrum-maker in exploiting his preparations.

(c) Bona-fide reports of investigations are distorted into praise of that which is virtually condemned.

(d) Men of absolutely no professional standing are employed to write, or sign, laudatory reports.

(e) Favorable comments are given the widest publicity while unfavorable ones are carefully suppressed.

(f) Meaningless jumbles of words are often used to make the physician believe that the manufacturer employs scientific methods.

(g) Hypotheses and discarded theories of eminent men are often used in such a way as to make it appear that the savant approves of the nostrum-makers' methods.

(h) Every field of medical research is watched jealously and the nostrum-maker is ever alert to launch some nostrum to meet a popular demand resulting from every discovery long before the foremost investigators have advanced beyond the merest hypothesis.

These and similar distortions of the truth do an incalculable amount of harm. They not only promulgate and perpetuate what is false, but they also hinder the acceptance of what is true, in that they cast suspicion even on honest research. This can only be prevented by a universal sentiment, a sentiment so strong as to ostracise those who resort to such practices. The medical teachers have it in their power to create and foster such a sentiment.

Montana October Report

Dr. William C. Riddell, secretary of the Board of Medical Examiners of the State of Montana, reports the written examination held at Helena, Oct. 6, 1908. The number of subjects examined in was 10; total number of questions asked,

50; percentage required to pass, 75. The total number of candidates examined was 50, of whom 30 passed and 20 failed. The following colleges were represented:

PASSED		
College	Year Grad.	Per Cent.
University of California	(1906)	78.6
George Washington University	(1906)	80.2
Jenner Medical College	(1902)	75.1
College of Physicians and Surgeons, Chicago, (1903) 78.4; (1905) 79; (1906) 76.7; (1908) 81.2.		
Northwestern Univ. Medical School	(1903) 75.2; (1904)	82.7
American College of Medicine and Surgery	(1905) 76.8,	87.2
American Medical Missionary College	(1907)	77.6
Rush Medical College	(1906)	87
Indiana University	(1908)	77.6
Louisville and Hospital Medical College	(1908)	83.5
University of Michigan (1899) 76.6; (1906) 81.2;	(1908)	76.8
University of Minnesota	(1907) 76.9, 81.9; (1908)	75
Barnes Medical College	(1908)	79.2
St. Louis University	(1905) 76.1; (1908) 77.7,	88.4
Creighton Medical College	(1908)	75.3
Jefferson Medical College	(1908)	80.6
University of Pennsylvania	(1905)	79.4
McGill University, Quebec	(1907) 79.3; (1908)	81.2

FAILED		
Bennett Coll. of Eclectic Medicine and Surgery	(1879)	60
Rush Medical College	(1885) 37.3; (1898)	62.1
Chicago Homeopathic Medical College	(1897)	67.5
Illinois Medical College	(1900)	62.8
College of Physicians and Surgeons, Kansas City	(1902)	63.5
Harvard Medical School	(1907)	72.2
University of Michigan	(1895) 58; (1907) 72.3; (1908)	69.7
Hamline University	(1903)	52
Kansas City Medical College	(1889)	61.7
Barnes Medical College	(1896)	62.6
Marion-Sims College of Medicine	(1895)	63.9
University Medical College, Kansas City	(1905)	71.8
Creighton Medical College	(1908)	73.9
Columbia University, Coll. of P. and S., New York	(1894)	68.8
University of Pennsylvania	(1894)	67
University of Toronto, Ontario	(1899)	73.7
University of Turin, Italy	(1899)	63.3

New Jersey 1908 Reciprocity Report

College	Year Grad.	Reciprocity with
Yale Medical School	(1908)	New York
Howard University, Washington	(1904)	New York
Columbian University, Washington	(1905)	New York
Hahnemann Med. Coll., Chicago, (1902) New York; (1906)		Illinois
Kentucky School of Med.	(1906)	New York
College of P. and S., Baltimore	(1897)	New York
Johns Hopkins Med. School	(1906)	New York
Baltimore Med. Coll.	(1902) Maine; (1897)	New York
College of P. and S., Boston	(1906)	Maine
Boston University	(1908)	Maine
Harvard Medical School	(1894) Maine; (1907)	New York
University of Michigan	(1893)	New York
Woman's Med. Coll., Kansas City	(1897)	Ohio
Columbia Univ., Coll. of P. and S., New York, (1896) (1901) 4, 1904) (2, 1905) (3, 1906) (4, 1907)		New York
Cornell Univer. Med. Coll.	(1904) (1905) (3, 1907)	New York
Long Island Coll. Hosp., (1897) (1903) (1904) (1905) (1906) (1907) (1908)		New York
New York Homeo. Med. Coll. and Hosp.	(2, 1906)	New York
Woman's Med. Coll. of the New York Infirmary for Women and Children	(1895)	New York
Syracuse University	(1908)	New York
Eclectic Med. Coll. of New York	(1906)	New York
Bellevue Hosp. Med. Coll.	(1894) (1898) (1899)	New York
New York Med. Coll. and Hosp. for Women (1897) (1901)	(1908)	New York
University and Bellevue Hosp. Med. Coll. (3, 1907) (3, 1908)		New York
New York University Med. Coll.	(2, 1897)	New York
Albany Med. Coll.	(1902) (1905)	New York
Woman's Med. Coll. of Pennsylvania	(1907)	New York
University of Pennsylvania	(1899) (1903)	New York
Hahnemann Med. Coll. and Hosp., Philadelphia, (1895) Colorado; (1896) Delaware	(1907)	Maine
Jefferson Med. Coll.	(1902)	Illinois
University of Vermont	(1893) New York; (1906)	Vermont
McGill University, Quebec, Canada	(1904) (1905)	New York
Queen's University, Ontario	(1903)	New York
Royal Hungarian University, Budapest	(1894)	New York
University of Berlin, Germany	(1908)	New York
University of Naples, Italy	(1898) (1903) (1906)	New York
University of Turin, Italy	(1900)	New York
University of Moscow, Russia	(1897)	New York

Oklahoma November Report

Dr. Frank P. Davis, secretary of the State Board of Medical Examiners, reports the written examination held at Muskogee, November 10-13, 1908. The number of subjects examined in was 14; total number of questions asked, 140; percentage required to pass, 70. The total number of candidates examined was 44, of whom 34 passed and 10 failed. One candidate took an incomplete examination. The following colleges were represented:

PASSED		
College	Year Grad.	Per Cent.
Atlanta Coll. of P. and S.	(1901)	87
Illinois Med. Coll.	(1908)	87
Northwestern Univ. Med. School	(1907)	87
Chicago Coll. of Med. and Surg.	(1908)	84
College of P. and S., Chicago	(1908)	90, 91
Hahnemann Med. Coll. and Hosp., Chicago, (1897) 79; (1908)		84
Eclectic Med. University, Kansas City	(1905)	73
Kansas Med. Coll.	(1874)	79
Kentucky School of Med.	(1907) 82; (1908)	92
University of Louisville	(1907)	81
Louisville Med. Coll.	(1907)	90
Louisville and Hospital Med. Coll.	(1908)	78, 84
Hospital Coll. of Med., Louisville	(1900)	87
Washington University of St. Louis	(1907)	81
University Med. Coll., Kansas City	(1908)	91
Barnes Med. Coll.	(1905)	82
Albany Med. Coll.	(1907)	87
Cleveland Homeopathic Med. Coll.	(1907)	85
Jefferson Med. Coll.	(1907)	83
University of Nashville	(1908)	90
Vanderbilt University	(1908)	83, 91
Meharry Med. Coll.	(1907) 78; (1908)	81, 81, 82
University of West Tennessee	(1908)	71
University of Vermont	(1905)	89
Medical Coll. of Virginia	(1902) 82; (1906)	90

FAILED		
University of Arkansas	(1908)	72*
Atlanta Coll. of P. and S.	(1902)	81*
Chicago Coll. of Med. and Surg.	(1908)	78*
Dearborn Med. Coll.	(1904)	78*
University of Louisville	(1897) 74;* (1908)	67
Barnes Med. Coll.	(1904)	74*
Cleveland Homeopathic Med. Coll.	(1906)	80*
Memphis Hospital Med. Coll.	(1908)	65
Tennessee Med. Coll.	(1900)	58

* Fell below the minimum of 50 per cent. on one or more branches.

Delaware December Report

Dr. Henry W. Briggs, secretary of the Medical Council of Delaware, reports the written examination held at Dover, December 8-10, 1908. The number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 4, all of whom passed. One candidate was admitted by reciprocity. The following colleges were represented:

PASSED		
College	Year Grad.	Per Cent.
University of Maryland	(1907)	76.6
Jefferson Med. Coll.	(1903)	93.1
University of the South	(1899)	83.5
University of Toronto, Ontario	(1908)	84.1

LICENSED THROUGH RECIPROCITY		
College.	Year Grad.	Reciprocity with
University of Pennsylvania	(1898)	New Jersey

Pennsylvania December Reports

The Medical Council of Pennsylvania reports the written examinations held by the several boards at Philadelphia and Harrisburg, Dec. 1-4, 1908. The number of subjects examined in was 7; percentage required to pass, 75.

At the examination held by the State Medical Board, the total number of candidates examined was 80, of whom 69 passed and 11 failed. The following colleges were represented:

PASSED		
College	Year Grad.	Total No. Examined
Denver and Gross Coll. of Med.	(1907)	1
Howard University, Washington	(1907) (4, 1908)	5
Rush Med. Coll.	(1905)	1
University of Louisville	(1908)	5
Louisville Med. Coll.	(1907)	1
University of Maryland	(1908)	2
Johns Hopkins Med. School	(1906) (1908)	2
College of P. and S., Baltimore	(1906) (3, 1908)	4
Baltimore Med. Coll.	(1903) (1908)	2
Detroit Coll. of Med.	(1906)	1
St. Louis Coll. of P. and S.	(1904)	1
Leonard Med. School	(1907) (1908)	2
University and Bellevue Hosp. Med. Coll.	(1907)	1
College of P. and S., New York	(1894)	1
Woman's Med. Coll. of Pennsylvania	(1904) (2, 1907)	3
University of Pennsylvania, (1886) (1902) (3, 1906) (3, 1908)		8.
Western Pennsylvania Med. Coll., (1899) (1907) (3, 1908)		5.
Medico-Chirurgical Coll., Philadelphia, (1899) (1904) (1906) (1906) (2, 1908)		5.
Temple Coll. of Med.	(1907)	1
Jefferson Med. Coll.	(2, 1906) (8, 1908)	10
University of the South	(1901)	1
University of Toronto, Ontario	(1901) (1908)	2
McGill University, Canada	(1906)	1
Queen's University, Kingston, Ontario	(1908)	1
University of Rome, Italy	(1904)	1
University of Naples, Italy	(1906)	1
University of Vienna, Austria	(1903)	1

FAILED		
Howard University, Washington	(1907)	1
National Med. Univ., Chicago	(1906)	1
Louisville Med. Coll.	(1909)	1
University of Maryland	(1903) (1905)	1
Western Pennsylvania Med. Coll., (2, 1907) (2, 1908)		4
University of the South	(1903)	1
University of Naples, Italy	(1905)	1

At the examination held by the Homeopathic Medical Society, the total number of candidates examined was 4, all of whom passed. The following colleges were represented:

At the examination held by the Eclectic Medical Society, the total number of candidates examined was 7, all of whom passed. The following colleges were represented:

College	PASSED Year Grad.	Total No. Examined
New York Homeo. Med. Coll.	(1897)	1
Cleveland Homeopathic Med. Coll.	(1908)	1
Hahnemann Med. Coll., Philadelphia	(1907) (1908)	2

College	PASSED Year Grad.	Total No. Examined
University of Louisville	(1907)	1
Maryland Med. Coll.	(1907)	1
Baltimore University	(1904)	2
Western Pennsylvania Med. Coll.	(1908)	1
University of the South	(1904)	1
University of Naples, Italy	(1899)	1

Texas November Report

Dr. M. E. Daniel, secretary of the Texas State Board of Medical Examiners, reports the written examination held at Dallas, November 10-12, 1908. The number of subjects examined in was 12; total number of questions asked, 120; percentage required to pass, 75. The total number of candidates examined was 60, of whom 59 passed and 1 failed. The following colleges were represented:

College	PASSED Year Grad.	Per Cent.
University of Arkansas	(1898) 92.7; (1901)	83
George Washington Univ.	(1908)	93.5
Howard University, Washington	(1908)	87.2
Medical Coll. of Georgia	(1907)	83.1
Atlanta Coll. of P. and S.	(1901)	81
Georgia Coll. of Ecl. Med. and Surg.	(1905)	84.2
University of Iowa	(1895)	90.2
Eclectic Med. University, Kansas City	(1905)	75
Louisville and Hosp. Med. Coll.	(1908)	78.2
Louisville Med. Coll.	(1889) 85.2; (1893)	84.3, 90.1
Kentucky School of Med.	(1894) 75; (1908)	78.2
University of Louisville	(1908)	85.3, 93.8
Tulane University of Louisiana	(1881) 86.3; (1899)	92.7
Maryland Med. Coll., (1901) 80.8; (1905) 80.7; (1907) 79.2; (1908) 84.4.		
College of P. and S., Baltimore	(1897)	95.2
University of Maryland	(1892)	89
University of Michigan	(1904)	87.4
University of Minnesota	(1908)	85.5
Barnes Med. Coll.	(1896) 83.5; (1904)	82.1
Marion Sims Coll. of Med.	(1896)	95
Eclectic Med. Institute, Cincinnati	(1872)	99.6
Pulte Med. Coll.	(1877)	75.7
Med. Coll. of Ohio	(1889)	82
Starling Med. Coll.	(1898)	95.7
Cleveland Homeo. Med. Coll.	(1895)	90.4
Memphis Hosp. Med. Coll., (1889) 75; (1891) 75; (1898) 91; (1900) 86.5; (1906) 75.		
University of Nashville, (1868) 91.6; (1896) 75; (1897) 89.5; (1907) 76.5.		
Chattanooga Med. Coll.	(1905)	75.1
University of the South, (1906) 76.4; (1901) 95.2; (1904) 84.3; (1907) 83.2; (1908) 81.4.		
Vanderbilt University... (1889) 91.5; (1894) 92; (1900)		85.6
Meharry Med. Coll.	(1908)	81.3
University of Tennessee	(1894)	90.5
Baylor University... (1905) 76.5; (1906) 92.5; (1907)		84.2
National Med. School, Mexico City	(1905)	86.5

College	FAILED	
Kansas City Med. Coll.	(1903)	73.8

TEXAS RECIPROCITY REPORT

Dr. M. E. Daniel, secretary of the Texas State Board of Medical Examiners, sends the following report of reciprocal licenses issued by that board since September 1, 1908:

College.	Year Grad.	Reciprocity with
Medical College of Alabama	(1902)	Virginia
Columbian University, Washington, D. C.	(1900)	Dist. Colum.
Rush Med. Coll.	(1907)	Missouri
Northwestern Univ. Med. School	(1902)	Illinois
Hahnemann Med. Coll. and Hosp., Chicago	(1908)	Illinois
University of Iowa	(1901)	Iowa
Louisville and Hosp. Med. Coll.	(1906)	Kentucky
University of Louisville	(1906)	Kentucky
College of P. and S., Baltimore	(1896)	Illinois
Detroit College of Med.	(1905)	Michigan
University of Michigan	(1908)	Michigan
Washington University, St. Louis	(1907)	Illinois
St. Louis University	(1906)	Missouri
Missouri Med. Coll.	(1886) Illinois; (1888)	Missouri
St. Louis Coll. of P. and S.	(1908)	Missouri
Barnes Med. Coll.	(1908)	Illinois
Creighton Med. Coll.	(1896)	Illinois
Cleveland Coll. of P. and S.	(1903)	Ohio
Hahnemann Med. Coll. of Philadelphia	(1906)	Maryland
Vanderbilt University	(1882)	Kentucky
University of the South	(1903)	Virginia
University of Nashville	(1860)	Illinois
University of Tennessee	(1905)	Kentucky
University of Virginia	(1900)	Virginia
Medical Coll. of Virginia	(1904)	Virginia
Wisconsin Coll. of P. and S.	(1897)	Wisconsin

Book Notices

THE INFLUENCE OF ALCOHOL AND OTHER DRUGS ON FATIGUE. By W. H. R. Rivers, M.D., F.R.C.P., Fellow of St. John's College, Cambridge. Pp. 136. Cloth. Price, $1.70. London: Edward Arnold, 1908. New York: Longmans, Green & Co., 1908.

While much work has been done to determine the influence of drugs, and especially of alcohol, on muscular and mental fatigue, the psychic element in the tests has been allowed to play an unduly large part in the results. This factor Dr. Rivers attempted to eliminate in the series of experiments which form the subject of his book. In determining the capacity for muscular work the ergograph was used and a set of six ergograms taken, the interval between successive series being equal—usually an hour. The subject was not permitted to see either the weight raised or the tracing recorded. In giving the drugs, control mixtures were administered so that the subject did not know on what days the drug was taken—a precaution which, while evidently of great importance, has been taken by no other workers in this field unless by Sobieranski and Schumberg. The fatigue of attention was studied by the McDougal method, which consists in having the subject hit a succession of dots which pass before him through a slit, accuracy of aim determining the degree of mental alertness. The multiplication and typewriting tests for mental fatigue were also used. The results of these studies are interesting and instructive; the most striking being the conclusions reached concerning the effect of alcohol on fatigue. In general, it may be said that Rivers' experiments seem to prove that alcohol in very moderate quantities has no appreciable effect on the capacity for muscular work, while it lessens the capacity for mental work, the different results obtained by other workers being, he believes, "due to defects of experimental method." In other words "the natural conclusion is that the results of previous workers have been due, not to the physiologic effects of the alcohol, but to the presence of certain factors, and especially interest and sensory stimulation, the influence of which can only be excluded by the use of a control." Incidentally it would seem that Dr. Rivers' method in his alcohol experiments, while admirable from the standpoint of pure science, has practically a very limited applicability. The psychic elements of "interest" and "sensory stimulation" are always present when ordinary alcoholic beverages are taken in the ordinary way. The work done by Dr. Rivers, however, is none the less valuable—it is in fact more valuable. By it he demonstrates the actual part played by the psychic element in the administration of a drug about which there is so great a difference of opinion.

THE FUNCTIONAL INERTIA OF LIVING MATTER. By David Fraser Harris, M.B., C.M., M.D., B.Sc. (Lond.), F.R.S.E., Lecturer on Physiology and Normal Histology in the University of St. Andrews. Cloth. Pp. 136. Price $2.00. Philadelphia: P. Blakiston's Son & Co., 1908.

That living matter possesses the fundamental property of irritability has long been generally known; that this property is in itself sufficient to explain all vital processes is not so universally believed. It is probable that the physiologic counterpart of irritability, or affectability, as it has been called—that is, non-affectability—plays as important a part on the biologic stage as does irritability itself. This, at least—in fact, more than this—is Dr. Harris' thesis, for to his mind non-affectability is not a mere negation; it is as much a positive, fundamental property of protoplasm as is affectability itself. For this reason Dr. Harris prefers the term "functional inertia" to the less comprehensive terms, "insusceptibility" or "non-affectability."

To apply a physical analogy to a biologic fact: Inertia in physics is, according to Newton's postulate, that property of matter by virtue of which a body at rest remains at rest and a body in motion continues moving in a straight line unless acted on by external forces. It is because of its "inertia of rest" that the heavy wagon, when pushed, responds at first but slowly to the impulse given; when once started, however, its "inertia of motion"—momentum—keeps it moving even

after the application of the impelling force has ceased. So, according to Dr. Harris, does living protoplasm, by virtue of its "functional inertia," offer, as it were, resistance to external stimuli and, having finally responded to such stimuli it, by its "inertia of motion," continues to exhibit functional activity after the stimuli *per se* have ceased to exist. The converse is equally true; for, as the wagon, once set in motion, requires an arresting force to stop it—even though the impelling force has ceased—so also may the poststimulant activity of protoplasm be an expression of its functional inertia. In other words, the activity of protoplasm which is not the result of applied stimuli and which is, in fact, exhibited even under conditions which tend to suppress it, is inertial. This, briefly, is Dr. Harris' biologic philosophy; logically pursued it leads him far. In biochemistry the overproduction of receptors as antitoxin by which, according to Ehrlich's side-chain theory, "acquired immunity" is possible, is explained by Harris as katabolic inertia—"a response which has outlived the stimulus." The postmortem vitality of the tissues is another example of katabolic inertia. But if this property is fundamental to the cell it must needs be exhibited in the living unit which those cells compose—the individual; and, a step further, in the race. So, according to Harris, this property of functional inertia is "responsible for racial characteristics and national destinies." Reversion to type is thus but another manifestation of the tendency of the individual to retain his racial *status quo*—a hereditary functional inertia. As related to consciousness "habit" becomes the "expression of the functional inertia of psychic activity"; if the habit is one of long existence the more nearly will it approach protoplasmic, rather than psychic, inertia.

That Dr. Harris' theory is new can hardly be claimed; in fact, he does not claim it himself. That he has expressed it more clearly and elaborated it more convincingly than has any previous writer is perhaps not too much to say. As a working hypothesis to explain much that is at present obscure the theory of "functional inertia" is valuable; but that it is distinctly a theory and lacks much in way of confirmation should not be forgotten. To those who enjoy biology in its philosophic aspects and derive pleasure from the mere perusal of virile and not too technical English this little book can be commended.

DISEASES OF THE SKIN AND THE ERUPTIVE FEVERS. By Jay Frank Schamberg, A.B., M.D., Professor of Dermatology and Infectious Eruptive Diseases in Philadelphia Polyclinic and College for Graduates in Medicine. Cloth. Pp. 534, with illustrations. Price, $3.00. Philadelphia: W. B. Saunders Co., 1908.

Once in a while some genius succeeds in summarizing satisfactorily a complex and detailed subject. When we try, however, to give an illustration of such a successful summary in medical literature we are at a loss. Such masterpieces in epitome are rare in any department of literature, and when one does exist, as, for example, Darwin's "Origin of Species," it is usually dry reading. So, if we are critical in our estimate of the book under consideration, we believe that our position is due to the fact that Dr. Schamberg—a thoroughly competent dermatologist—has undertaken an almost impossible task. He has written a book of 518 pages and, in emphasizing the eruptive fevers, to which he gives 138 pages, he has left himself 380 octavo pages in which he undertakes to consider all of the remainder of dermatology. Now, it may well be argued that dermatology is over-refined and that some day, after our knowledge has increased, some great mind will simplify it by a number of broad generalizations, as Duhring did in one field with his dermatitis herpetiformis; but the fact remains that at present there are about 200 distinct dermatoses that have to be described if one is undertaking to cover dermatology, and an average for each condition of less than two pages octavo, including illustrations and with good readable print, is not enough to permit anything but wholly unsatisfactory consideration.

Dr. Schamberg's style is readable and clear, with the important exception that he is apt so to err on the side of caution as to be uncertain even about well-established facts. For example, impetigo "appears to be caused by inoculation with the germs of contagious pus." There hardly seems to be any reason for hanging the student up in the air by an "appears" with such a well-established fact as the production of impetigo by infection with pus organisms. Another illustration might be offered in the discussion of the etiology of ecthyma—between which and impetigo, by the way, is inserted impetigo herpetiformis, a systemic disease of uncertain pathology. Blastomycosis is described twice, on pages 188 and 293. The illustrations are numerous and good.

INSTINCT AND HEALTH. By Woods Hutchinson, A.M., M.D., Lecturer on Clinical Medicine, New York Polyclinic. Cloth. Pp. 334. Price, $1.20. New York: Dodd, Mead & Co., 1908.

Dr. Hutchinson has given the public a book that is as delightful reading as it is blankly heretical. We do not, of course, approve of all the views therein put forward, but we do realize that it is by outspokenness such as this, on what may be deemed popular and professional superstitions, that healthy investigation is courted and the wholesale acceptance of the "science" of proverbs is deprecated. Among the subjects dealt with are diet delusions, "poison foods," exercise, sleep, sunshine and fresh air, baths and bathers, clothes and the woman, complexion, sins of the shoemaker, child-life, and the health of the middle-aged man. Hutchinson champions common sense against the fiddle-faddle of much so-called "scientific" dietetics, which persists in treating the living organism as on the same basis with a test-tube. He castigates the breakfast-food, vegetarian and other dietary fads, protests against the "deification of the disagreeable" in life, and against those attempts to reduce living to a machine-like process, robbing it of all individuality, which would make all men live on the same food, practice the same social habits, require the same maximum or minimum of sleep, rise at the same time, bathe and heat their rooms at the same temperature, etc. He ridicules the gigantic *non sequiturs* whereby men who have attained to long life, robust health, or huge muscular development, instruct us how to arrive at the same result by doing as they did, forgetful of the fact that if each one of us were to attempt to put in practice all the various methods we should have to attempt the impossible feat of sucking and blowing at the same time. "As well," he says, "might the elephant endeavor to explain the secret of how to weigh three tons, or the boa constrictor write a pamphlet on how to grow forty feet long." He rehabilitates spices as valuable intestinal antiseptics and scores the oatmeal diet craze as based on a syllogism of this kind: "The Scots are a great people; oatmeal is their principal food; therefore oatmeal is a great food." He regards the fact as the most convincing proof of the greatness of the Scots, though hardly of the oatmeal. "The secret," he says, "of their wonderful success, both mental and physical, lies in the fact that any nation trained to survive a diet of oatmeal and the shorter catechism could survive anything and flourish anywhere." The book is not altogether free from dogmatism, due possibly to Dr. Hutchinson's epigrammatic style, but it abounds in humor and common sense and in a wholesome and cheery optimistic iconoclasm.

SLEEPING SICKNESS BUREAU. Bulletin No. 1, October, 1908. Paper. Pp. 51. London: Sleeping Sickness Bureau, 1908.

No introductory statement accompanies this bulletin, but it is to be inferred that the Sleeping Sickness Bureau proposes to publish a series of bulletins covering various phases of this most interesting disease. It is "issued under the direction of the honorary managing committee," of which the chairman is Sir J. West Ridgeway. Other members are Sir Patrick Manson, Sir Robert Bruce, Dr. J. Rose Bradford, Colonel Sir David Bruce, Mr. E. A. Walrond Clarke, Mr. H. J. Read, and Mr. A. Berriedale Kieth. The director of the bureau is A. G. Bagshawe of the Uganda medical staff, who is also the editor of this bulletin. Bulletin No. 1 treats of the chemotherapy of sleeping sickness under the headings of: Treatment of trypanosomiasis in man; biologic accommodation of trypanosomes to chemotherapeutic agents; treatment of experimental animals; conclusions; bibliography.

It is a most excellent and timely recital of the experience with the use of the more or less specific drugs in the treatment of sleeping sickness in man and animals, such as atoxyl and

other forms of arsenic, antimony, mercury, and such dyes as trypan-red, trypan-blue and parafuchsin.

The important practical outcome of past experience is expressed in two principles which are set forth by the author in his conclusions. First, combined therapy is demanded. "The employment of atoxyl or any other trypanocide by itself has ceased to be justifiable." The combined attack of two trypanocidal drugs seems to be more effective than any one used alone, even in very large doses.

The second principle is that of "alternation of trypanocidal agents." This is made necessary by the phenomenon of the resistance which a race of trypanosomes readily acquires against any one of the agents used, a resistance which they retain through many generations of passage in experiment animals.

LEHRBUCH UND ATLAS DER ZAHNHEILKUNDE MIT EINSCHLUSS DER MUNDKRANKHEITEN. (Lehmann's Medizinische Handatlanten Band XXX.) Von Gustav Preiswerk, Lektor an der Universität Basel. Edition 2. Cloth. Pp. 398, with illustrations. Price, 14 marks. München: J. F. Lehmann's Verlag, 1908.

This work of 30 chapters with 44 colored and 140 other illustrations, shows the anatomy of the mouth, jaws and teeth, as well as the pathology, histology, bacteriology, etc., of diseased conditions of the mouth. The pathology of the tooth pulp has been well worked out and beautifully illustrated. This work is by far the best contributed from a stomatologic point of view and demonstrates, conclusively, the stomatologic trend at the present time. The arrangement of subjects and simplicity of treatment make it a desirable work for the student as well as the practitioner. It should be of special value to dentists.

REPORT OF COMMITTEE ON BUILDING OF MODERN HOUSES. By General George M. Sternberg, M.D., LL.D., Chairman of Committee. Paper. Pp.111, with illustrations. Washington, D. C.: The President's Homes Commission, 1908.

This report of a committee appointed by President Roosevelt to consider the housing of the poor in Washington, describes the deplorable condition of the houses of the poor in that city and tells what has been done to better this condition. Much space is devoted to the same problems in other cities and to the solution offered in them; and numerous plans and specifications for cheap and healthy homes for the poor are furnished. There is great need in Washington as well as in other cities, of sanitary homes for unskilled laborers and their families. The committee urges that such homes should be supplied as a philanthropic enterprise by those interested in the welfare of the community, for a profit can not be earned on houses for which only $5 to $10 a month is paid, provided they are kept in a sanitary condition.

CONSUMPTION. By N. S Davis, A.M., M.D., Professor of Principles and Practice of Medicine, Northwestern University Medical School. Cloth. Pp. 171. Second Edition. Price, $1.00. Philadelphia: F. A. Davis Co., 1908.

The first edition of this work was one of the earlier treatises on consumption, designed for popular use, and laid down rules and principles of management which are now generally recognized as sound. Advances in methods of application and especially the results of sanatorium management made revision desirable, and in this edition Dr. Davis has rewritten portions of chapters and added one on the advantages of institutional treatment. More careful revision and more accurate proofreading would have prevented some minor errors, but, as a whole, the work deserves commendation as an interesting and safe guide for both professional and lay readers.

JAHRESBERICHT ÜBER DIE FORTSCHRITTE IN DER LEHRE VON DEN PATHOGENEN MIKROORGANISMEN umfassend Bakterien, Pilze und Protozoën. Von P. Von Baumgarten o.ö. Professor der Pathologie an der Universität Tübingen, and F. Tangl, o.ö. Professor der allgemeinen und experimentellen Pathologie an der Universität Budapest. Twenty-second Year, 1906. Paper. Pp. 964. Leipsic: Verlag von S. Hirzel.

The present volume represents a review of the literature on pathogenic micro-organisms for the year 1906. The amount of literature is somewhat less than in previous years, which is to the advantage of medical science. On a cursory examination the volume appears to sustain the reputation already earned by the numbers of previous years.

Medicolegal

Osteopaths and Death Certificates

The Court of Appeals of New York holds, in the case of Bandel vs. Department of Health of City of New York, that the statute of that state makes doctors of osteopathy physicians, while the Sanitary Code requires every physician in the City of New York to register his name with the department of health.

The court says that the only ground on which the health department refused to register this party, and the only reason advanced for opposing the motion to compel his registration, was, as specifically stated by the sanitary superintendent in his affidavit, that "a doctor of osteopathy by reason of his limited training and the express prohibition against his use of drugs and medicines and the use of surgical instruments, is not a physician and is not competent to diagnose and treat disease as a physician, not to give a certificate of death showing the cause thereof." The effect of the denial of registration as a physician to the party by the health department was that the body of a person who died while he was the medical attendant could not be buried on his certificate and not until a coroner had taken charge of the case and had held an investigation.

The court also expresses the view that when a person employs one licensed to practice, his family, in case of his death, should not be subjected to the intense annoyance of a coroner's investigation where the law does not require it. But it adds that, while, doubtless, the department of health can make stringent regulations as to the persons whose certificates of death it will accept for the purpose of a burial permit, it was sufficient to say that, so far as appeared, when this proceeding was commenced it had not made any regulation which excluded licensed osteopaths from the right to give such certificates.

But Chief Justice Cullen, with whom Justice Haight concurs, declares that the function of a coroner's inquest is to investigate the cause of death where there are reasonable grounds for suspicion that it has been occasioned by crime or violence. One purpose and a chief purpose of accepting a physician's certificate as evidence of the cause of death is doubtless to exclude suspicion of crime. Where death is caused by criminal means, it usually occurs through external violence or from poison. The osteopath is precluded by the law from practicing surgery or administering drugs, presumably for the reason that his education does not qualify him to practice where either drugs or surgery may be necessary. "I am, therefore," the Chief Justice continues, "not prepared to say that the board of health might not properly require that a certificate of death, which would exclude from the cause thereof either wounds or poison, be made by a physician who is competent to judge of such matters. It is sufficient for the disposition of this case to say that the Sanitary Code now in force draws no distinction between the two classes of physicians, but I think we should not intimate that the Sanitary Code may not properly be amended in this respect."

No Right to Practice Medicine Without a License

The Supreme Court of Iowa says that the defendant in the case of State vs. Taylor, commenced the practice of medicine in 1884, and continued in the practice thereof without a license until indicted in this case. He claimed that, having practiced in the state for five consecutive years, three years of which time was in one locality, he was within the expection of section 2579 of the Iowa Code, which provided that the provisions of the chapter shall not be construed to prohibit practice of physicians, as defined therein, "who have been in practice in this state for five consecutive years, three years of which time shall have been in one locality."

The first act regulating the practice of medicine in Iowa was passed in 1886, and the law as then enacted is substantially the law now as found in sections 2576-2583 of the Code. In the original act an exception was made as follows: "If not a graduate, the person practicing medicine or surgery

within this state, unless he or she shall have been in continuous practice in this state for a period of not less than five years, of which he or she shall present to the state board of examiners satisfactory evidence in the form of affidavits, shall appear before the state board of examiners and submit to such examinations as said board may require." In section 2579 the requirement of satisfactory evidence of practice was omitted, and the defendant claimed that because of such change the Legislature intended to say, and did say, that whoever had been in the practice of medicine in Iowa, whether rightfully or wrongfully, for a period of five years before that time, had the right to go ahead and practice without a certificate or license. The contention was manifestly unsound.

The original act was in force all of the time until the Code became the law, and the dropping therefrom the requirement of evidence cannot be construed into a legalizing act intended to shield one who had confessedly violated the law. Section 9 of the act of 1886 made it a misdemeanor for any person to practice without having complied with the provisions of the act, but that no penalties for a violation thereof should be enforced prior to the 1st day of January, 1887. It is very clear that after January 1, 1887, no one could legally practice medicine without complying with the act, or without bringing himself within the exceptions therein provided, and this the defendant did not do. He had never qualified under the exception of the statute but was daily violating the law, and, if his contention that the change referred to gave him the right to continue practice without a certificate or license be sustained, the court should have to hold that he had acquired such right by practice in violation of law. Such a holding would not only destroy the public protection intended by the statute, but it would offer a direct premium for a practice wholly in violation of such statute. The Legislature had no such intention, and the defendant was clearly not within any exception to the statute.

Death From Disease in Case of Lowered Vitality After Injury

The Supreme Court of Nebraska holds, in the case of Ward vs. Aetna Life Insurance Co., that in an action brought to recover on an accident insurance policy, where the question is whether death resulted from an accidental injury for which the insurer is admitted to have been liable, the bodily condition of the insured between the date of receiving such injury and his death is a relevant fact; and all things done or said by the insured which expressed or showed his bodily condition in reference to the injury are relevant.

Where his opinion as to the cause of death is asked of a physician called as a witness, it is neither necessary nor proper to include in the hypothesis the fact that the attending physician had pronounced the patient cured of an injury from which it was claimed his death resulted. An expert witness should give his own judgment uninfluenced by the opinion of other experts.

Whether the death of a person whose life was insured against death by accident was caused by an admitted accident, or resulted from some other cause, is a question for the jury, unless the proofs as to such cause of death are so convincing that from them all reasonable men in the fair exercise of their judgment would adopt the same conclusion.

Where a person accidentally injured is insured against accident under a policy which provides for the payment of a sum named in case death results solely from such injury within 90 days, all morbid changes in the exercise of vital functions or the texture of bodily organs which result from or are induced by such injury should be regarded as the effect thereof, and not as independent causes; and, when death results from such morbid changes, it is caused by such accident within the meaning of such policy. Beginning with a primary cause, conditions induced by such cause are affects thereof; and every condition so induced must be considered in relation thereto as an effect, and not as a cause.

Where a person, after recovery from an accidental injury, succumbs to a disease which would not have been fatal but for the lowered vitality following such injury, the disease, and not the lowered vitality, is the cause of death. The explanation given of this is that the power of the healthy body to resist disease varies greatly in different individuals, and in the same individual at different times. Undoubtedly a lower state of this power follows convalescence from a serious injury for a considerable period; and an attack of disease is more likely to prove fatal when the patient is found in such lowered state. When an attack of disease is followed by death, which would not have occurred but for the lowered vitality of the patient, such lowered state may be considered as a condition that opens the way for the production of the effect, but not as its cause. In other words, it is not the cause of death, but the occasion, in that sense of the latter word in which it is understood to mean that which furnishes an opportunity for the event to occur, without being itself the efficient cause or sufficient reason thereof.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

New York Medical Journal

January 23

1 Treatment of Acute Gonococcus Urethritis in the Male. J. Pedersen, New York.
2 *Repair of Lacerations of the Cervix During Puerperal Convalescence. J. C. Hirst, Philadelphia.
3 Two Instances of Simultaneous Occurrence of Hypernephroma and Carcinoma. G. B. Foster and C. H. Gerhard, Philadelphia.
4 *Vesicovaginal Fistula Following Abortion in Operation for Incomplete Congenital Transverse Septum of Vagina. S. M. Brickner, New York.
5 *Roentgen-Ray Examination of the Esophagus. S. Lange, Cincinnati.
6 *Incipient Tuberculosis of Lungs and Its Diagnosis. G. Wilson, Baltimore.
7 Clinical Gonorrhea in the Male. (Continued.) M. Huhner, New York.

2. **Lacerations of the Cervix.**—Hirst considers that there is no valid reason why injuries to the cervix or anterior wall resulting from labor should not be corrected at once, as is done with injuries to the perineum. The frequency of injuries to the cervix is, compared to those of the perineum, about 33 per cent. Of every hundred women with perineal tears at least one-third will have cervical tears in addition. The diagnosis of cervical tears is best made through a bivalve speculum and not by the sense of touch, which is most unreliable. The best time to make this examination is about the fourth day after delivery. The best time to repair the injury is, like all other injuries to the genital tract, on the seventh day after labor. For the past three years Hirst has applied to these cervical tears the principle of the double tier continuous suture of No. 1 catgut, chromicized to last about forty days, in the fascia. He describes the technic of the operation.

4. **Vesicovaginal Fistula.**—Brickner describes a case of vesicovaginal fistula which followed abortion in an operation for incomplete congenital transverse, septum of the vagina. The features of interest in this case lie: (1) In the pregnancy folowing the operation for the relief of the septum; (2) in the difficulty of delivering even a four and one-half months' old fetus; (3) in the complete subsequent scarification of the vagina; and (4) in the origin of the septum. He discusses the origin of congenital transverse septa.

5. **Roentgen-Ray Examination of the Esophagus.**—Lange calls attention to the fact that the Roentgen ray may be of great value in the recognition and study of esophageal disorders. Further observations are necessary to confirm the interpretation of the motile phenomena seen on the fluorescent screen. He outlines a method of diagnosis based on the examination of many normal cases and on sixteen cases of esophageal obstruction.

6. **Incipient Tuberculosis.**—Wilson says that to justify us in making a definite diagnosis in an adult we must have a "history" that is at least suggestive, and either find bacilli in the sputum or persistent physical signs in the lungs, especially at the apices, which can not be accounted for by

syphilis, a clearing up of a pneumonia or an undoubted attack of influenza, bearing in mind that the tuberculous invasion may simulate influenza; and it is in this latter group when there is no sputum, or frequent examinations are negative that tuberculin is of greatest value and fortunately, most exact. Hemoptysis in a person under 35, even though accompanied by slight symptoms and no physical signs on frequent examinations, should lead the physician to suspect tuberculosis so strongly that he should advise the use of tuberculin. Finally, in that group of patients in whom the physician is not justified in making a diagnosis, but in whom there is history of exposure to infection and symptoms, though slight, yet are suspicious, he should be frank and make them realize the necessity of fresh air, especially in their sleeping rooms, the building up of the body by extra feeding in the form of milk and eggs, the avoidance of over fatigue and the need of remaining under medical care until the suspicions have been justified or removed.

Medical Record, New York

January 23

8 *Common and Uncommon Localization of Otitic Brain Abscess, as Illustrated by Two Cases, with Recovery. B. Sachs and A. A. Berg, New York.
9 Adequate Drainage the Essential Step in the Successful Surgery of Brain Abscess. F. Whiting, New York.
10 Clinical and Anatomic Manifestations of Otitic Brain Abscess. A. Wiener, New York.
11 Pyloric Stenosis. J. S. Brown, Montclair, N. J.
12 *Symptomatology of Tuberculosis of the Larynx. G. Fetterolf, Philadelphia.

8. **Otitic Brain Abscess.**—Sachs and Berg discuss in this article the difficulties of localization and those of the surgical treatment of brain abscess, with special reference to drainage. Localization is most common in the temporosphenoidal lobes or in the cerebellum. If the former, there will be in addition to general symptoms—headache, somnolence, nausea, vomiting and slight optic neuritis, some hemiparesis and impairment of speech perception. Sensory aphasia is a common accompaniment of otitic brain abscess in the temporosphenoidal lobes. Right temporosphenoidal abscess is sometimes associated with dysarthria, not with sensory aphasia. Abscess in the cerebellum, in addition to general abscess symptoms, may show cerebellar ataxia, diminution or increase of deep reflexes, abducens paresis, acoustic nerve symptoms, and possibly cerebellar seizures. The motor area is rarely the seat of otitic brain abscess, wherefore the author's second case reported in this article is important, because it proves that an undoubted otitic abscess may involve the motor area. The three main considerations from a surgical viewpoint are: 1. A wide exposure of the area of the brain in which the abscess is supposed to lie. This is best done by raising an osteoplastic flap. 2. A most important consideration is the protection of the meninges against infection by the purulent contents of the abscess cavity. If this lies near to the cortex of the brain, or on it, it is more than likely that the meninges will be protected from infection by a barrier of natural adhesions that have formed before the operation is done. These are the most favorable cases for surgical interference. 3. Proper drainage of the abscess cavity. Here we must remember that there are two entirely different kinds of abscess cavities in the brain—one, with soft walls that readily collapse when the contained pus is evacuated; and the other with rigid walls that show no tendency to fall together, and that must be obliterated by the slow process of granulation. In the former, all that is required is the establishment of drainage by a thin slip of rubber tissue at the most dependent point of the cavity. In the latter the drainage must be by a tube of some kind, whether rubber, decalcified bone, or other material, according to the choice of the operator. This tube must be inserted at the lowest point of the abscess cavity, otherwise there is bound to be retention of pus.

12. **Tuberculosis of the Larynx.**—Fetterolf urges examination of the larynx in every case of actual or suspected pulmonary tuberculosis. This would save much suffering and many lives. Discussing changes in the voice, he remarks on a symptom noted by him in a few cases during conversation, which consists of a slight rotation and twisting of the head toward the position found in torticollis. This is usually associated with a cicatrized and arrested tuberculous lesion of the voice-producing apparatus. It must not be forgotten, however, that while the patient is tuberculous the laryngeal lesion may be due to syphilis, hysteria, general asthenia, or may result from mechanical interference with the inferior and external laryngeal nerves. Cough need not necessarily be present with laryngeal tuberculosis. As a practical working basis it can be assumed that if the cough is harsh, "throaty" in quality, and unproductive or out of proportion to the amount of sputum, there is present more or less laryngeal irritation at the door of which can be laid some of the responsibility. Should there be present large infiltrations of the arytenoids the patient will have a characteristic tubular, indescribable quality to the voice which is almost pathognomonic. Not much that is significant can be gathered from the sputum, but attention should at once be directed to the larynx on the following history: The patient awakes with a feeling of fulness and dryness in the throat, associated with huskiness or some degree of aphonia. On arising, coughing begins, and is frequently associated with retching, or even vomiting, continuing until there is ejected a discoidal mass of inspissated mucopus, dark, hard, and dry on one side, and yellow, green, sometimes moist on the other. The presence of blood in the sputum can but rarely be attributed to the larynx. Pain is the most serious symptom, and it is probably due to this that the laity regard "throat consumption" as such a terrible disease. When it occurs during deglutition advanced disease of the epiglottis is probably present. Dysphagia is rarely present, unless associated with pain in swallowing. Dyspnea may occur early or late. The symptoms enumerated are considered by the author only in their relation to the larynx, but the tonsils, pharynx, etc., should receive proper consideration. Moreover, the symptoms are elicited from the patient, not from the disease, so that his personal equation must form part of their valuation.

Boston Medical and Surgical Journal

January 21

13 *Surgical Treatment of Cancer of the Bladder. A. T. Cabot, Boston.
14 Some Aspects of Cystitis. A. L. Chute, Boston.
15 Tumors of the Bladder and Cystitis. E. Garceau, Boston.
16 *Value of Hemolysis in Diagnosis of Carcinoma. W. Whittemore, Boston.

13. **Cancer of the Bladder.**—Cabot emphasizes the value of the cystoscope in diagnosis of bladder conditions, and says that when the slightest doubt exists a second cystoscopic examination should be made before accepting or refusing operation. It is important that the early symptoms of bladder tumors should be widely known among general practitioners, for patients are often transferred to a surgeon at too late a stage because they had been long treated for cystitis or renal hemorrhage. Hemorrhage may appear either as a constant slight flow, in litle clots intermittently, or in considerable amount. Pain does not usually show itself until the growth is far advanced, but the expulsion of blood clots causes painful tenesmus. Bladder irritation does not usually appear till late in the course of the growth. Microscopic examination of the urine may show bits of characteristic villi, but villi of imperfect type are sometimes found in connection with inflammatory bladder conditions when there is no tumor. Clumps of atypical epithelium, if abundant, are almost as characteristic of tumor as are villi. Even in the hands of skilled surgeons cases of bladder tumor often go long unrecognized. The way to avoid this is to look into every bladder over which the slightest shadow of doubt hangs. Cabot discusses the clinical pathology of these tumors and, from personal experience, thinks it would not be far from the truth to say that all papillomas in the bladder become cancerous unless thoroughly removed early. He holds that operation in papilloma through an operating cystoscope must necessarily be incomplete, and therefore can not be efficient. These growths, even when quite insignificant, should be removed by open incision; their early removal will cure the condition, and the operation on an early papilloma is comparatively simple. Cancer of the bladder is usually slow to invade the lymphatic system. The bladder may be divided roughly into two parts, the free and

the attached. A cancer on the free portion may be cut out with a good margin of healthy bladder wall about it; but when the growth is in the base of the bladder, the possibility of a removal which shall be followed by cure is problematical, and the operation is very severe and has a high mortality rate. A palliative, rather than a radical, operation should therefore usually be chosen in these cases. The question of approach is an open one. Cabot's feeling is that when we expect to do a radical operation we should open through the peritoneal cavity, and get all the added room that method affords. A small carcinoma should be excised with a liberal margin and the bladder wall sutured before removing the growth, by transuxing it with a shoemaker's stitch, crossing to and fro well below the base of the tumor. After the stitch is firmly drawn, the growth is cut off. When the ureter has to be severed, reimplantation in an uninjured portion of the bladder wall is the best course. The author does not agree with those who consider palliative operations useless. The comparative comfort resulting is often well worth the pain and confinement of operation. Since most of the pain is associated with urination, Cabot commends Watson's plan of diverting the urine from the bladder by double nephrostomy, as a cancerous rectum is relieved by colostomy.

16. **Hemolysis in the Diagnosis of Carcinoma.**—Whittemore summarizes his paper as follows: In this series of 109 cases, 39 normal individuals were tested, in whom hemolysis occurred 7 times (17 per cent.); 22 cases of carcinoma, in which hemolysis occurred 8 times (36 per cent.). It occurred in 50 per cent. of the cases of tuberculosis; also it occurred in Hodgkin's disease, chronic empyema, tabes, paraplegia, general paresis, in one case of malaria and in one of sarcoma. From these results he concludes that at present hemolysis is of no value in the diagnosis of carcinoma.

Lancet-Clinic, Cincinnati

January 16

17 *Experiences with Autogenous Bacterial Vaccines. O. Bergbausen, Cincinnati.
18 *The Obstetrical Forceps. R. W. Stewart, Cincinnati.
19 Six Cases of Epidemic Cerebrospinal Meningitis. R. W. E. Irwin, Manchester, Ohio.

January 23

20 Expert Testimony and the Medical Witness. L. M. Crafts, Minneapolis.
21 *Hysterical and Neurasthenic Conditions Following Accidents. R. F. Turner, Memphis Tenn.
22 *Question of Legal Responsibility. A. E. Sterne, Indianapolis, Ind.
23 Mental Responsibility. C. W. Hitchcock, Detroit, Mich.

17. Abstracted in THE JOURNAL, Nov. 21, 1908, p. 1806.

18. **Obstetrical Forceps.**—Stewart holds that the forceps is the best friend the obstetrician can have, and one whose help he will need far oftener than he will that of the knife. The four cardinal principles that underlie every application of forceps are, (1) never to use them as dilators, but only (2), to expedite labor; (3) to bring to normal a badly placed fetal head; (4) to overcome obstruction in the mother's pelvis and soft parts. Stewart discusses each of these cardinal principles fully and dilates on the following general principles for their application: (1) the need and methods of absolute sterilization for both instruments and parts; (2) the choice of instruments for various applications; (3) the anesthetic and degree of anesthesia, (4) the advantages of substituting a firm strong table for the yielding bed in the application of the forceps.

21, 22. Abstracted in THE JOURNAL, Nov. 21, 1908, pp. 1806, 1807.

Northwestern Lancet, Minneapolis

January 15

24 *Medical Education Number.

24. This issue is taken up with a consideration of the unification of medical teaching in the State of Minnesota, including its history, accounts of the various medical colleges, etc.

Surgery, Gynecology and Obstetrics, Chicago.

December

25 *Surgical Treatment of Pancreatitis. W. J. Mayo, Rochester, Minn.
26 *Etiology and Pathogenesis of Pancreatitis. W. D. Haggard, Nashville, Tenn.
27 *Physiology and Chemical Pathology of the Pancreas in Pancreatitis. J. H. Schroeder, Cincinnati, Ohio.
28 *Diagnosis of Pancreatitis. A. J. Ochsner, Chicago.
29 *Pancreatic Diabetes and Its Relation to Gallstones. A. C. Croftan, Chicago.
30 *Comparative Irritative Properties of Some Mercury Combinations Used as Antiseptics. G. B. Lawson, Roanoke, Va.
31 *Clinical Conclusions as to the Value of Vaccine Therapy in Surgical Infections. J. C. Hollister, Chicago.
32 *Operative Treatment of Unilateral Lung Tuberculosis by Total Mobilization of Chest Wall by Means of Thoracoplastic Pleuropneumolysis. P. L. Friedrich, Marburg, Germany.
33 *Visceral Prolapse. F. H. Martin, Chicago.
34 Comparison of the Total Urea Excreted by Each Kidney in Surgical Diseases of These Organs. B. S. Barringer, New York.
35 Total Avulsion of the Scalp. E. F. Robinson, Kansas City, Mo.
36 Case of Tuberculous Disease of the Cecum and Appendix. J. C. H. Leicester, Calcutta, India.
37 *Malignant Tumors of Ovaries. W. S. Gardner and S. McCleary, Baltimore.
38 Surgical Treatment of Tuberculous Adenitis, with Special Reference to the Cervical Lymphatics. J. A. Attridge, Detroit, Mich.
39 *Exstrophy of the Urinary Bladder. O. P. J. Diakonow, Moscow, Russia.

25, 26, 28, 29. Abstracted in Society Proceedings, THE JOURNAL, Nov. 14, 1908, p. 1724, and published in the *Lancet-Clinic*, Dec. 5, 1908.

27. This article is essentially the same as one published by the same author in THE JOURNAL, Sept. 5, 1908, p. 837, and in the *Lancet-Clinic*, Dec. 5, 1908.

30. **Mercuric Chlorid.**—Lawson publishes a comparison (with clinical reports) of the irritant properties of various mercurial preparations and draws the following conclusions:

1. Mercuric chlorid is more irritant to the skin when combined in solution with acids.
2. Mercuric bromid and iodid are more irritant to the skin than mercuric chlorid.
3. Mercuric chlorid is slightly less irritant to the skin when in solution in normal saline solution than when in distilled water.

31. Abstracted in Society Proceedings, THE JOURNAL, Oct. 31, 1908, p. 1535, and published in the *Lancet-Clinic*, Nov. 21, 1908.

32. Published in *Archiv f. klinische Chirurgie*, vol. lxxxvii. Abstracted in THE JOURNAL, Nov. 28, 1908, p. 1909.

33. **Visceral Prolapse.**—Martin, after a study of embryologic development, concludes that:

1. Defects in the growth of the human body arising as a result of an arrest at some point in the development from embryo (congenital) or as a result of reversion to a lower type (evolutional) are strong factors in the etiology of visceral prolapse.
2. The most conspicuous defects are observed in: (a) development of the skeleton; (b) the development of the peritoneum; (c) the development of the muscles of the trunk; (d) the development of the fascial layers of the trunk; (e) the development of the efficiency of the nervous apparatus controlling the viscera and their relation to the trunk; (f) the development of fat layers and deposits.
3. The conspicuous signs of these defects are exhibited in: (a) a straight spinal column showing little or no forward curve in the lumbar region, a perpendicular sacrum, a forward bend in the cervical region; (b) a flat chest, a small waist, perpendicular pelvis, protruding of the lower zone of the abdomen; (c) slightly forward bend of the trunk, stooping shoulders and long arms.

37. **Ovarian Tumors.**—A study of tumors of the ovary with particular reference to malignancy leads Gardner and McCleary to the following conclusions:

1. All ovarian tumors should be removed early, because primary carcinoma of the ovary usually begins in a benign growth and an early operation removes a prolific source of malignancy. Even when the malignant process has made considerable progress there is an excellent opportunity to effect a complete cure.
2. Ovarian tumors should be removed through an abdominal incision long enough to allow the tumor to escape without breaking the cyst wall. We must come back to what Washington Atlee called the "major incision"—the incision most strenuously advocated by J. Bland-Sutton.

39. **Exstrophy of the Urinary Bladder.**—Diakonow discusses Maydl's and Subbotin's operations and publishes his own modification of the latter as follows: Dissection of the longest possible quadrangular flap of bladder mucous membrane whose base is directly at the openings of the ureters is the first step. The flap may be in the middle line, or it may be oblique in order to gain length, or if necessary, it may be extended over the border of the mucous membrane into the skin. Through a 2 cm. long, transverse incision in front of the anus, the mucous membrane of the rectum, together with the submucosa, is separated from the external sphincter, the dissection being made with a scalpel to a depth of about 1.5 cm. and continued with closed blunt shears through the tissues to the bladder, the shears being controlled by a finger in the

bladder. On puncture of the bladder by the shears a rubber catheter is passed from below and on the end of the catheter the end of the flap of mucous membrane is made fast by means of a silk ligature. By withdrawal of the catheter, the flap of mucous membrane is drawn down through and sutured to the skin of the anal border. The result is a newly built urethra having epithelial walls, which at the will of the patient can be opened or closed by the action of the external sphincter. Then follows the closure of the anterior abdominal cleft either by direct suture of the edges or by utilization of one or another plastic operation according to the requirement of the case in hand.

Journal Experimental Medicine, New York

January

40 *Pathogenesis of Waxy Degeneration of Striated Muscles (Zenker's Degeneration). H. G. Wells, Chicago.
41 Postmortem Rigor of the Mammalian Heart and the Influence of an Antemortem Stimulation of the Pneumogastric Nerves on Its Development. D. R. Joseph and S. J. Meltzer, New York.
42 Relation of the Weight of the Contents of Stomach and Cecum to the Body Weight in Rabbits. D. R. Joseph, New York.
43 *The Bordet-Gengou Bacillus of Pertussis. M. Wollstein, New York.
44 Effect of Conditions on the Latent Period and Rate of Aseptic Postmortem Autolysis During the First Ten Hours. H. C. Jackson, Albany, N. Y.
45 Relation of Proteid, Lipoids and Salts to the Wassermann Reaction. H. Noguchi, New York.
46 Phagocytic Immunity. J. C. Meakins, New York.
47 *Relation of Tetany to the Parathyroid Glands and to Calcium Metabolism. W. G. MacCallum and C. Voegtlin, Baltimore.
48 Fatal Septicemia in *Macacus rhesus* Caused by a Streptococcus Decolorized by Gram's Method. R. V. Lamar, New York.
49 Autotransplantation and Isotransplantation, in Dogs, of the Parathyroid Glandules. W. S. Halsted, Baltimore.
50 Catalytic Activity of the Blood in Relation to (I) the Functional Sufficiency of the Kidneys; (II) Peritonitis. M. C. Winternitz, Baltimore.

40. **Waxy Degeneration of Striated Muscles.**—Wells summarizes his article as follows: In view of the theoretical deductions and the positive results obtained in the experiments, it would seem probable that the production of waxy degeneration depends on the action of lactic acid, which is formed by the living muscle under the stimulation of infecting bacteria or their toxins, the formation of large amounts of lactic acid and its accumulation being perhaps favored by defective circulation through the injured muscle. The hyaline transformation of muscle acted on by lactic acid is analogous to the swelling of fibrin placed in dilute acids. This view is supported by both negative and positive experimental evidence—the negative being that simple anemic necrosis, aseptic or antiseptic autolysis whether *in vivo* or *in vitro*, or the action of bacteria of various sorts on muscle *in vitro*, are all incapable of causing changes in muscle cells resembling those characteristic of waxy or hyaline degeneration of striated muscle. The positive evidence consists in the demonstration that lactic acid, even in dilutions comparable to the amounts that can be formed in living muscle, can produce a similar or identical waxy transformation of the striated muscle fibers, both *in vitro* and *in vivo;* and also the observation that muscles stimulated to exhaustion, under which condition lactic acid is known to accumulate in the muscle, show microscopically changes identical with those of Zenker's waxy degeneration.

43. **Pertussis.**—Wollstein discusses the bacteriology, animal inoculation, and serum reaction of pertussis, and finds in their study support to the view that the Bordet-Gengou bacillus is the possible cause of pertussis, but her studies have not produced any distinctively new evidence of this relationship beyond the proof of the wide dissemination of the peculiar bacillus in Nature and its occurrence in pertussis.

47. Discussed editorially in THE JOURNAL, January 30, p. 388.

American Medicine, New York

December

51 *Some Unusual Features and Complications Occurring in Typhoid. J. Walter, New York.
52 Relation of Headaches to Errors of Refraction: A Study of Three Thousand Consecutive Cases from Private and Hospital Practice. A. Bray, Philadelphia, Pa.
53 Causes and Treatment of Nasal Hemorrhage. I. W. Voorhees, New York.
54 Advantages and Disadvantages of the Intramuscular Injection Method of Treating Syphilis. W. B. Trimble, New York.
55 Acidemia and Autointoxication. H. R. Harrower, Chicago.
56 Early Diagnosis of Cancer of the Stomach. L. Kast, New York.

51. **Typhoid.**—Walter cites cases illustrating the complication of typhoid by influenza, malaria, pregnancy, localized edema of the abdomen, ulcer of the pharynx, and erythema; also cases simulating typhoid or remarkable from the advanced age of the patient, as well as some atypical varieties of this disease. In many cases he feels justified in pointing to intestinal autointoxication as a probable cause of chills and rise of temperature in typhoid.

Kentucky Medical Journal, Bowling Green

December

57 *Suggestive Therapeutics. W. E. Senour, Bellevue.
58 *Organic Serum Therapy. R. H. Cowley, Beren.
59 *Use of Drugs in Treatment of Disease. W. S. Anderson, Newport.
60 Present Status of Therapeutics and Some of Its Agents. W. L. Heizer, New Haven.
61 Work on the Jefferson County Milk Commission. B. C. Frazier, Louisville.
62 *Considerations in the Diagnosis and Treatment of Diseases in the Accessory Sinuses of the Nose. G. C. Hall, Louisville.
63 *Symptoms, Diagnosis, and Medical Treatment of Inflammation of Kidney. B. F. Zimmerman, Louisville.
64 *Surgical Treatment of Inflammatory Diseases of the Kidneys. D. Barrow, Lexington.
65 *Symptoms, Diagnosis and Treatment of Neoplasms of Kidney. G. A. Hendon, Louisville.
66 Medical Management of Gallstones. F. W. Fleischaker, Louisville.
67 Surgical Management of Biliary Disease. L. Frank, Louisville.
68 Gonorrheal Conjunctivitis. L. S. Givens, Cynthiana.
69 Depressed Fracture of Skull—History of Case. C. L. Nichols, Louisville.
70 Pathology of Typhoid Fever, with Remarks on the Laboratory Method of Diagnosis. L. M. Moody, Madisonville.

57, 58, 59, 62, 63, 64, 65. Abstracted in THE JOURNAL, Oct. 31, 1908, p. 1546.

Ohio State Medical Journal, Columbus

December

71 Vaginal Cesarean Section. F. S. Clark, Cleveland.
72 Ptosis of the Gall Bladder. E. Ricketts, Cincinnati.
73 *Diagnosis of Tumors of the Spinal Cord. W. B. Laffer, Cleveland.
74 Ulcerative and Purulent Cystitis. C. M. Harpster, Toledo.
75 Essentials in Treatment of Diseases of the Skin, with Special Reference to the Teachings of Lassar. L. Reich, Cleveland.
76 Trachoma in Its Sociologic Aspect. C. C. Stuart, Cleveland.
77 Obstetrics and Pediatrics—Their Growing Relation. P. L. Myer, Toledo.
78 Present Status of the Medical and Surgical Treatment of Exophthalmic Goiter. (Continued.) F. Warner, Columbus.

73. Abstracted in THE JOURNAL, May 23, 1908, p. 1721.

Military Surgeon, Carlisle, Pa.

December

79 *Origin and Condition of the Peoples Who Make up the Bulk of Our Immigrants at the Present Time and the Probable Effect of Their Absorption on Our Population. M. H. Simons, U. S. Navy.
80 Diagram of the Medical Organization, United States Army, for Service with a Division. G. H. Richardson, U. S. Army.
81 Retrospect of Cooperative Work of the Medical Services of the Government. H. W. Austin, United States Public Health and Marine-Hospital Service.
82 *Tropical Diseases in the Philippines. J. M. Phalen and H. J. Nichols, U. S. Army.
83 Laceration of the Brain and Subdural Hemorrhage—Report of a Case Successfully Treated by Bilateral Intermusculo-Temporal Decompression. A. McGlannan, U. S. Army.

79. **American Immigration.**—Simons discusses the evolution of man and his gradual distribution over the face of the earth, with the formation of races, and applies to the question of immigration the deductions he draws therefrom as to the effect of crossing. A cross between the black and white, white and yellow, yellow and black, and black and red, usually inherits the bad qualities of both, but few of the good. It is not favorable to longevity or to desirable mental qualities. A mixture of varieties of a race, not of races, is necessary for the preservation and stimulation of the mental and physical qualities which insure the steady advancement of a people. To develop the best American type, we should insure not only that those coming in are desirable physically and mentally, but that their habits, methods of thought, and state of civilization are such that they will readily assimilate with us. Simons considers it a pity that the legal assumptions and responsibilities of manhood are not now marked by some ceremonial, such as was formerly

practiced by candidates for knighthood, or for admission to the warrior class among American Indians; the preparation therefor tended to foster the moral forces, self-restraint, tenacity of purpose, devotion to a high ideal of conduct, etc. He advocates restriction of marriage for the mentally, morally or physically defective or perverted. The admission of immigrants to the overcrowded tenement district is a danger to themselves and to others. They should be diverted to the country or to districts sanitarily fitted for them. It is particularly difficult to find men fitted for the Navy. The sailor formerly lived healthily in the open. To-day he lives in a steel fortress, artificially lighted and ventilated and much overheated. No wonder tuberculosis and infectious diseases are common in the Navy. The frequency of desertion Simons ascribes to defective moral development.

82. **Philippine Tropical Diseases.**—Phalen and Nichols report on the study of filariasis, bilharziosis, paragonomiasis, amebic diseases, cutaneous blastomycosis, tinea imbricata and yaws.

Iowa Medical Journal, Des Moines

December

84 Venereal Diseases and Blindness. L. W. Dean, Iowa City.
85 *Neurasthenia in Connection with Eye Disease. R. M. Lapsley, Keokuk.
86 Value of the Ophthalmometer in the Estimation of Refractive Error. F. E. Franchere, Sioux City.
87 *Ophthalmia Neonatorum and the Accoucheur. C. P. Franz, Burlington.
88 The Squinting Child. G. F. Harkness, Davenport.
89 *Treatment of Frontal Sinus Suppuration. H. Bailey, Waterloo.
90 Rupture of Bladder Due to Phimosis. J. H. Talboy, Sioux City.
91 Puerperal Eclampsia. N. M. Whitehall, Boone.

85. **Neurasthenia and Eye Disease.**—Lapsley emphasizes the frequency of the nervous element in ophthalmic patients, and the great importance of bad habits as a contributing cause.

87. **Ophthalmia Neonatorum.**—Franz advocates a law to oblige all physicians and midwives in every case of childbirth, no matter what the race, mental, moral, or social standing of the parent, to take prophylactic measures for the sake of the child.

89. **Frontal Sinus Suppuration.**—Bailey summarizes his article as follows:

There are no reliable external signs to indicate the size or shape of the frontal sinus.

X-ray photographs should be taken of all frontal sinuses as a preliminary to operation.

It is impossible to tell before operation whether or not bone necrosis has occurred in the sinus wall.

On account of the almost universal involvement of the anterior ethmoidal cells in chronic frontal sinusitis, no surgical procedure for the relief of frontal sinus suppuration should be considered complete that does not include also these cells.

For anatomic reasons, the intranasal operation for radical cure of chronic suppuration of the frontal sinus is a method which is dangerous to practice, and still more dangerous to recommend.

We have as yet, no ideal operation for the cure of chronic suppuration of the frontal sinus.

Maryland Medical Journal, Baltimore

January

92 Public and Private Water Supplies in Maryland. M. L. Price, Baltimore.
93 The Country Doctor. B. W. Goldsborough, Ocean City, Md.

American Journal of Surgery, New York

December

94 Treatment of General Peritonitis Complicating Appendicitis. D. N. Eisendrath, Chicago.
95 *Rational Spinal Support. H. W. Frauenthal, New York.
96 Clinical Types of Acute Dilatation of the Stomach with Experimental Researches. R. C. Kemp, New York.
97 Acute Perforating Gastric and Duodenal Ulcer. (Continued.) E. Eliot, New York.

95. **Rational Spinal Support.**—Frauenthal, in a well-illustrated article, calls attention to defects in conventional mechanical treatment now in use, due to the failure to apply scientific principles of mechanics in the fitting of braces. He draws the following conclusions:

Unless a brace rests on the pelvis, by collar across the crest of the ilium, it is ineffectual and harmful.

When disease occurs above the seventh dorsal vertebra, either the patient should be treated in the recumbent position for months or years, or a brace or jacket applied, with jury mast attached, that will take off the superimposed weight above the point of disease.

Children under three years of age with tuberculosis of the vertebra should be treated in the recumbent position in bed or on a portable cuirass.

In orthopedic work, we should use all that is accepted as beneficial in tuberculosis of the soft tissues.

Southern California Practitioner, Los Angeles

December

98 The Sixth International Tuberculosis Congress. C. E. Yount, Prescott, Ariz.
99 Why Applicants for Medical License Fail. F. C. E. Mattison, Pasadena.
100 Opsonic Index—Eastern Opinions Concerning Its Value. R. L. Cunningham, Los Angeles.
101 Joint Affections in Nervous Diseases. T. J. Orbison, Los Angeles.

Journal Indiana State Medical Association, Fort Wayne

December

102 First Aid to the Injured. I. W. Short, Elkhart.
103 Cystitis in the Female. E. E. Padgett, Indianapolis.
104 Myocardial Failure from Causes Other than Valve Lesions. A. C. Kimberlin, Indianapolis.
105 A Few Important Points in Regard to Nervous and Mental Diseases. C. F. Neu, Indianapolis.

Chicago Medical Recorder

December

106 Diagnosis and Treatment of Tuberculous and Pathogenic Bone Lesions. J. P. Webster, Chicago.
107 Dependence of Intraocular Diseases on Affections of the Nasal Accessory Sinuses. F. Brawley, Chicago.
108 *Lumbar Puncture and Blood Analysis in Diagnosis and Treatment of Meningococcus and of Tuberculous Meningitis. J. F. Hultgen, Chicago.
109 Antigonocccus Serum and Vaccine Therapy in Relation to Medical and Instrumental Treatment. F. Baumann, Chicago.
110 Ectopic Gestation with Early Recovery. R. Zentsch, Chicago.
111. The Medical Fee. A. C. Heffenger, Portsmouth, N. H.

108. **Tuberculous and Meningococcus Meningitis.**—Hultgen concludes that the blood changes in either of these two forms of meningitis, while not pathognomonic, are very valuable data in the early differential diagnosis. The relation between the total and the differential count is what we need to know and to interpret. Blood counts made at random, and without reference to clinical findings, are useless and even misleading. Our present-day knowledge of tuberculous meningitis is only fragmentary, and calls for energetic work in hematology and bacteriology. The eosinophilic leucocytes play an important rôle in the defense of the organism by liberating antibodies, the gathering and storing of which seems to be the special function of these white blood cells. They return in increased numbers after the recovery from any infectious, or even toxic disease. They return earlier if assisted by bactericidal sera, such as the Simon-Flexner preparation. The author's tables from the two cases of meningococcus meningitis show the close relation between the blood picture and its causative agency, and the still closer bond between the various leucocytes and the immunity or the systematic residue.

Journal of Ophthalmology and Otolaryngology, Chicago

December

112 Ocular Manifestations of Hysteria. R. J. Tivnen, Chicago.
113 Dependence of Intraocular Disease on Affections of the Nasal Sinuses. F. Brawley, Chicago.

St. Louis Medical Review

December

114 Some Uses of Carbon Dioxid in Dermatology. R. H. Boggs, Pittsburg.
115 Tuberculous Adenitis of the Mesenteric Lymph Nodes. L. Rassieur, St. Louis.
116 Metastatic Dacryoadenitis in Gonorrhea. M. Wiener, St. Louis.
117 Treatment of Cancer of the Rectum. R. H. Barnes, St. Louis.

Colorado Medicine, Denver

December

118 Plea for Free Distribution of Diphtheria Antitoxin in Colorado. F. E. Waxham, Denver, Colo.
119 *Blood Conditions of Childhood. T. R. Love, Denver, Colo.
120 Needed Legislation to Regulate Milk Supply. L. O. Rodes, Boulder, Colo.
121 Avenues of Tuberculous Infection in Children. C. G. Hickey, Denver, Colo.

119. **Blood Conditions of Childhood.**—Love concludes from his observations that in children a leucocytosis is common, and arises from the most trivial causes, more rapidly, and to a greater degree, and is, therefore, of somewhat less significance. In many cases it is the polymorphonuclears which are increased, but the inclination of the blood to revert to the infantile type appears to cause a disproportionate increase of lymphocytes. This is especially true of pathologic conditions. During an initial rise of a marked leucocytosis many immature leucocyte forms are found, including myelocytes.

Montreal Medical Journal

December

122 Heart Disease and Pregnancy. J. C. Cameron, Montreal.
123 Cultivation of the Meningococcus from Eye Conditions Complicating Epidemic Cerebrospinal Meningitis. H. McKee, Ottawa.
124 Congenital Hypertrophic Stenosis of the Pylorus. F. J. Shepherd, Montreal.
125 Portal Infection Originating in Appendicitis. J. Bell, Montreal.
126 Treatment of Pott's Disease of the Lumbar Vertebræ. A. M. Forbes, Montreal.

Atlanta Journal-Record of Medicine

December

127 Surgical Conscience. R. M. Harbin, Rome, Ga.
128 Active Exercise in Locomotor Ataxia. T. Toepel, Atlanta, Ga.
129 Malaria. D. H. Du Pree, Athens, Ga.
130 Tracheobronchoscopy and Esophagoscopy. O. H. Johnson, Athens, Ga.
131 Etiology, Infection and Treatment of Typhoid Fever. B. W. Hall, Bowman, Ga.

Illinois Medical Journal, Springfield

December

132 *Diagnosis in Acute Infections of the Hand. A. B. Kanavel, Chicago.
133 *Psychopathology of Hysteria. S. T. Robinson, Edwardsville.
134 *Serodiagnosis of Syphilis. W. J. Butler, Chicago.
135 Responsibility of the General Practitioner in Cases of Strabismus in Children. E. J. Gardiner, Chicago.
136 Multiple Sclerosis Complicated by Many Hysterical Phenomena. P. Bassoe, Chicago.
137 London's Eye Work Compared with that of Vienna. D. A. Vanderhoof, Rockford.
138 Urgently Needed Medical Legislation in Illinois. G. W. Webster, Chicago.
139 Fused (Horseshoe) Kidney. B. Robinson, Chicago.
140 *Nostrum Advertising in the Medical Press. R. M. Parker, Chicago.

132. **Acute Infections of the Hands.**—Kanavel continues the consideration of this subject previously dealt with by him in *Surgery, Gynecology and Obstetrics*, October, 1905, and November, 1907 (abstracted in THE JOURNAL, Jan. 4, 1908, p. 75). With reference to operative incision he says that the thenar space is best opened by an incision on the dorsum between the metacarpals of the index finger and thumb; the middle palmar space, by an incision along the lumbrical spaces extending into the palm; the ulnar bursa, by splitting it throughout its length, cutting the anterior annular ligament; the radial bursa by incision up to within a thumb's breadth of the anterior annular ligament; the fingers by lateral incisions into the sheaths; the forearm by lateral incisions above the wrist joint and an ulnar incision at the middle of the forearm. The after-treatment to preserve function is of as great importance as the proper operative procedure. Either without the other is sure to end in disappointment and failure.

133. Abstracted in THE JOURNAL, June 6, 1908, p. 1931.

134. **Syphilis.**—Butler discusses at length the serodiagnosis of syphilis, which he finds to be specific, and positive in from 90 to 98 per cent. of patients with syphilitic manifestations, in from 50 to 60 per cent. of latent cases, and in from 70 to 80 per cent. of patients with metasyphilitic and parasyphilitic disease. It is probably influenced by treatment. A positive reaction indicates activity of specific virus and calls for antisyphilitic treatment; but a negative reaction has not an equal negative value. It is diagnostic of a systemic infection, acquired or inherited, but not an organ diagnostic measure. It is useful in differential diagnosis and as an index for treatment.

140. **Nostrum Advertising.**—Parker considers the various factors in nostrum advertising, and insists that the party on whom we must rely to prevent nostrum advertising is he who contributes to our journals scientific articles. He is the real creator of the publication. He furnishes the life, the blood, the bone and the marrow of the medical journal. Who is he? He is the original research worker in the laboratory, the profound clinical student in the hospital ward, the expert surgeon and pathologist of the operating room. He is professor in our medical schools, the official and ex-official of our state and local society, the president and ex-president of the American Medical Association. He is even numerous among the ardent workers for this reform. He it is who sets the high standard of the publication which he favors with the invaluable reports of his tireless scientific investigations, creating for it a demand which calls it to the tables of thousands of physicians in spite of the burdensome handicap carried in the advertising columns. Parker feels confident that he suggests an absolute preventive of nostrum advertising in the medical press when, he says, to the contributor: "Refuse your manuscript to every medical journal advertising disreputable preparations. Deprived of your contributions, what will the publisher have left to attract the readers to his nostrum-laden pages?"

Alabama Medical Journal, Birmingham

December

141 Surgery of the Gall Bladder and Bile Ducts. C. H. Peck, New York.
142 External Use of Adrenalin in Neuralgia, Neuritis and Reflex or Referred Pain. J. M. Lowery, Birmingham.
143 Fate of Young Lydgate. J. S. McLester, Birmingham.
144 Normal Lactation. H. Swedlaw, Birmingham.
145 Tuberculosis in Perspective. R. C. Bankston, Birmingham.

Journal South Carolina Medical Association, Greenville

December

146 Medical and Surgical Aspects of Prostatic Obstruction. A. B. Knowlton, Columbia, S. C.
147 Puerperal Eclampsia, with Report of Cases. H. L. Shaw, Fountain Inn, S. C.
148 Have the Recently Reported Deaths from Diphtheria Antitoxin Been Satisfactorily Explained? L. C. Stephens, Greenville, S. C.
149 True Catarrh—Its Proper Etiology and Treatment. W. P. Porcher, Charleston.

Medical Herald, St. Joseph, Mo.

December

150 Dystocia in Apparently Normal Conditions. A. B. Somers, Omaha, Neb.
151 Appendicitis Accompanied by Local Suppurative Adenitis. G. G. Cottam, Rock Rapids, Iowa.
152 Influence of Nasal and Postnasal Obstruction in Children. L. W. Dean, Iowa City.
153 Diagnosis of Coxa Vara. D. T. Quigley, North Platte, Neb.
154 Arteriosclerosis. W. F. Waugh, Chicago.
155 Soil of Carcinoma, with the Treatment of the Same, so as to Overcome the Disease. C. F. de Francis, Brooklyn, N. Y.
156 An Effective Formula in the Treatment of Hepatic Insufficiency and Its Congeners. R. W. Morris, Chicago.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

Lancet, London

January 9

1 *Cardiac Motion as Revealed by the Vivisection of Disease. A. Morison.
2 Naso-Antral Polypus. A. B. Kelly.
3 Five Years' Experience with Dubois' Apparatus for Administering Chloroform. P. M. Chapman.
4 An Unusual Case of German Measles. G. C. Garratt.
5 *Two Cases of Obscure Rectal Pain and Their Treatment. F. C. Wallis.
6 Examination of the Fat in the Liver in Health and Disease. E. L. Kennaway and J. B. Leathes.
7 Case of Excision of the Scapula. H. B. Mylvaganam.

1. **Cardiac Motion.**—Morison studies an instructive case of sarcoma of the heart, and refers briefly to a few others that have come under his personal observation. He considers that the study of these cases suggests that man lives on his ventricles, and chiefly on his left ventricle, not on his veins or auricles, and that the normal action of the ventricles is dependent on the healthy action and interaction of the three fundamental factors in organic life—blood, cell, and nerves—a trinity in which the blood supplies the force necessary to the production and continuance of vital action; in which the cell is the specific agency or mechanism for a given organic act; and in which the nerves regulate alike the production of the motive force and the degrees and regularity of its manifestation in the specific cell. A corollary to this conclusion is, that as man lives on his ventricle, not on his auricle, the examination and registration of ventricular action are of greater practical importance than a similar investigation of the action of his veins and auricles, although as a detail these points have a scientific interest.

5. **Obscure Rectal Pain.**—Wallis describes two cases of so-called obscure rectal pain, neuralgic in character, which proved to be examples of what he holds to be a fairly common rectal trouble in young people, namely, submucous

tracks leading up to the bowel from the anorectal junction. Excision of the whole ring of mucous membrane containing the tracks, and suture of the upper cut edge to the anal skin, produced a cure in both cases; both of which had failed of relief by all the usual methods of treatment for so-called rectal neuralgia.

British Medical Journal, London

January 9

9 *Abdominal Emergencies. S. White.
10 *Appendicostomy in Diffuse Septic Peritonitis. W. Billington.
11 *Appendicostomy and Surgical Aspect of Colitis. J. L. Dawson.
12 Leucocytosis in Appendicitis. G. Mitchell.
13 *Syphilitic Leukoderma and the Pigmentary Syphilide. Sir J. Hutchinson.
14 Vincent's Angina. J. T. C. Nash.

9. **Abdominal Emergencies.**—White says that the majority of acute abdominal cases may be referred to one of the following groups: (1) acute intestinal obstruction, strangulated external hernia, internal strangulation, postoperative obstruction, acute intussusception, volvulus, or gallstones; (2) gastric and intestinal ulcers that have perforated; (3) acute inflammatory lesions of septic origin, (a) cholecystitis, salpingitis, and appendicitis. He considers separately ruptured tubal gestation, twisted ovarian pedicle, and traumatic lesions of the abdominal viscera. He discusses the differential diagnosis and treatment. In regard to appendicitis, he holds that it would be better if operation were performed in every case within a few hours of the onset of symptoms. If the case has not been seen early or the question of interference has not arisen until after the lapse of twenty-four hours, it is probably better to postpone operation, unless the symptoms are both acute and progressive. Immediate operation is called for during any stage of the disease by (1) a rapidly increasing pulse rate, particularly if unaccompanied by a corresponding rise in the temperature; (2) the recrudescence of acute pain in the appendicular region after it had subsided, or a sudden increase in the severity of the pain; (3) extension of the pain, tenderness, and muscular rigidity to other parts of the abdomen; (4) commencing abdominal distention, with or without vomiting; (5) rigors; (6) an increase in the size of the appendicular swelling after the third day; and (7) a change for the worse in the patient's expression. White then describes the operative details in abscess cases and those grave and hitherto fatal cases in which septic infection has spread from the appendix to the general peritoneum. He describes the modern method of treating the last class of cases by removal of the primary cause of infection, the provision of free abdominal drainage, posture (the shoulders higher than the pelvis) and the use of large quantities of saline solution by the bowels.

10. **Appendicostomy.**—Billington lauds the advantages of appendicostomy in diffuse septic peritonitis, describes the method of flushing the bowel thereby, and reports illustrative cases.

11. **Id.**—Dawson describes the operation of appendicostomy and discusses its use on colitis, in preference to right inguinal colostomy and cecostomy.

13. **Syphilitic Leukoderma.**—Hutchinson discusses the dappled skin of syphilitic leukoderma, studying it comparatively with the skins of animals, and notes the fact that the young of many animals show in extreme youth a speckling, spotting or streaking of their skins, which they lose when adolescent. Hutchinson's theory as to syphilitic leukoderma is that the human skin is in many persons latently dappled, and that the condition becomes obvious under certain states of disturbed pigment function, of some of which the spirillum of syphilis may be the cause. He says that we may safely assume that the peculiar patterns evolved in cases of this affection are physiologic, and due to original organization, not to disease. He further suggests that in secondary syphilis, disordered function of the suprarenal and other organs favors the accumulation of melanin in the cells and that finally, exposure to light brings about its deposition in unprotected parts. He explains thus the preference of the malady for the female sex and for the neck and bust, as well as its tendency to persist. He conjectures that it is a far more common affection in non-syphilitic subjects than has yet been suspected, and suggests a series of control experiments on healthy individuals, brunettes for choice, but not excluding males.

Medical Press and Circular, London.

January 6

15 Hemoptysis and Emphysema. L. Williams.
16 *The Question of Dementia Præcox. R. Jones.
17 Intermenstrual Pain. R. D. Purefoy.
18 *Stitches [Pain]. Prof. H. Barth.

16. **Dementia Præcox.**—Jones summarizes his conclusions as follows:

1. There is no definite disease, "dementia præcox." The descriptions applied cover almost every possible variety of insanity.
2. The term "dementia" is inapplicable, because it connotes permanent and irrecoverable loss of mental function.
3. The application of "dementia" is unsatisfactory to patients in whom the loss of memory is not a prominent early symptom.
4. The term does not state whether it is the terminal stage or the stuporous condition which is of primary importance.
5. The qualifying adjective "præcox" is equivocal in so far as it leaves it doubtful whether the diseased condition evolves precociously, or whether it is stated to occur in early life or youth. It is therefore a vague and indefinite term, as these symptoms are also known at maturity and even at the menopause, and therefore they should find no place in a scientific or logical classification.
6. A term which implies a definite entity, and which is with some becoming more accepted as such, should be distinguished by definite pathologic findings, which is not the case.
7. Finally, it is more in harmony with practice and of greater help to diagnosis and treatment to use, in place of "dementia præcox," the term "adolescent insanity," suitably subdivided as at present.

18. **Stitches.**—Barth discusses the special kind of pain that occurs as a symptom of acute pleuro-pulmonary affections, and constitutes an important factor in the production of dyspnea. This pain is due to irritation of subpleural nerve fibers, from inflammation of the serous membrane. He discusses its relation to acute pneumonia, bronchitis, pneumothorax, serofibrinous, diaphragmatic and purulent pleurisy, and mentions its occurrence in a tuberculous subject as indicating the formation of another focus of disease. He also discusses the "epigastric spot," described by DeBrun as occurring in pulmonary emphysema consequent on dilatation of the right heart and mitral affections at the stage of threatening asystole, as well as false stiches and intercostal neuralgia.

Clinical Journal, London

January 6

19 Achylia. R. Hutchinson.
20 *Cancer Affecting the Alimentary Canal. J. Bland-Sutton.
21 Surgery of Rectal Stenoses. L. McGavin.

20. **Cancer of the Alimentary Canal.**—Bland-Sutton emphasizes, as an extremely interesting and important fact, that more than half the total number of cases of cancer which attack the body arise in connection with the alimentary canal. The distribution of cancer in the alimentary canal is important. It is common in the esophagus, extremely frequent in the stomach, rare in the small intestine, and extremely common in the large bowel, particularly the terminal two feet thereof. This point Bland-Sutton considers to favor those who believe cancer to be due to a microparasite, probably taken in with either food or water. He himself feels so strongly on this point that for years he has avoided eating all sorts of uncooked vegetables, even the salads, tempting as they are. He cites the remark of a Frenchman to the effect that while the English live well and are fond of vegetables, they are the only people in the world who trust the scullery maid to prepare them. Years ago when he made large numbers of autopsies on the bodies of animals dying in the Zoölogical Gardens, he was struck by the extreme frequency with which uncountable numbers of intestinal parasites were found, due to the eating of uncooked food. Bland-Sutton cites an observation of Behla, concerning the town of Luckau in Germany, in which most of the 5,000 people were engaged in agriculture. Between 1875 and 1898 the death rate from cancer amounted to 1 out of every 25 or 30. The cancer incidence, however, was not generally distributed, but was confined to the eastern suburb, which was damp, low-lying, and encircled by a large ditch. The cancer closely followed the course of the ditch, which contained foul and stagnant water, in which the people washed and watered their vegetables, which were largely eaten raw. Not a single death

from cancer occurred during the period investigated in the sandy, dry, elevated western suburb remote from the ditch. Bland-Sutton considers the characteristics of cancer respectively in the esophagus, stomach, small and large intestines, and rectum. He suggests that those parts of the digestive tube are most prone to become cancerous in which food makes the longest sojourn. The stomach is a churn, and in this hollow viscus there is much mixing and motion of the ingested material, and therefore prolonged and close contact. The digested mass is hurried through the small bowel into the cecum, where it is retained for many hours and is ordinarily deprived of the main part of its fluid. That the undigested mass known as feces is retained for many hours, and in some ill-conditioned individuals for days, in the descending colon and sigmoid is an undeniable fact. This retention would be favorable for the invasion of the epithelial covering of the gut by an infective agent.

British Journal of Children's Diseases, London

December

22 Carcinoma of the Stomach in a Boy Aged Fourteen Years and Nine Months. R. B. Ness and J. H. Teacher.

Indian Medical Gazette, Calcutta

December

23 *Endemic Cretinism in the Chitral and Gilgit Valleys, India. R. McCarrison.
24 Roentgen Rays as an Aid to Diagnosis in Some Common Surgical Conditions. E. P. Connor.
25 *Cancer in Travancore, India. W. C. Bentall.

23. Published in *The Lancet*, Oct. 31, 1908, and abstracted in THE JOURNAL, Nov. 28, 1908, p. 1906.

25. Published in the *British Medical Journal*, Nov. 7, 1908, and abstracted in THE JOURNAL, Dec. 5, 1908, p. 2005.

Annales de Dermatologie et de Syphiligraphie, Paris

December, IX, No. 12, pp. 673-763

26 Cutaneous Symptoms of Human Trypanosomiasis. H. Darré.
27 Histologic Structure of the Skin in Monkeys. (La peau chez les singes.) W. J. Terebinsky.
28 The Balance Sheet of Mercurial Injections. (Le passif des injections mercurielles.) Lassere. Commenced in No. 11.

Archives des Maladies du Cœur, Paris

November, I, No. 11, pp. 609-672

29 Pathologic Anatomy of Hemolytic Icterus. H. Vaquez and C. Aubertin.
30 *Action of Strophanthin in Intravenous Injection in Heart Disease. (Action de la strophantine en injection intra veineuse dans les affections du cœur.) D. Danielopolu.

30. **Strophanthin in Heart Disease.**—Danielopolu has given intravenous injections of strophanthin in 23 cases of heart disease, including 6 with chronic myocarditis with or without asystole, 8 with mitral affections, including some with myocarditis, 3 with aortic lesions, chronic nephritis and asystole, and 3 cases of asystole with emphysema. The results encourage him to affirm that strophanthin deserves to rank as one of the best heart tonics not only for the rapidity and energy with which it acts on the heart but also by its influence in remedying the disturbances due to impairment of the heart action, the accurate dosage and its action exclusively on the heart. He advocates the intravenous route, using 0.001 gm. (1/64 grain) of the strophanthin in a single dose, repeated if necessary for several days in succession, allowing always an interval of at least twenty-four hours. One or two injections generally accomplish the desired results without need for more. It acts more rapidly than any other heart tonic, he says, strengthening the contractions, slowing the pulse, raising the arterial tension and making the heart beat more regular while the amount of urine is notably increased and edema soon subsides as also the passive congestion in the viscera. These effects are especially marked in heart affections without advanced kidney lesions. With advanced kidney disease the strophanthin is useless, or at most merely prepares the way for administration of diuretics. In a few rare cases fine results may be obtained by administering the strophanthin in intravenous injection at the same time as theobromin by the mouth. The strophanthin has no effect on the kidney trouble except in so far as the latter is directly dependent on the cardiac defect. For this reason, the injection of strophanthin may serve to differentiate whether the trouble is in reality heart disease with complications on the part of the kidneys. In his experience there were no chills or fever after the intravenous injection of the strophanthin, such as others have mentioned, and he is convinced that they can be avoided by strict asepsis.

Lyon Chirurgical

November, I, No. 1, pp. 1-92

31 *Tuberculous Abscess in the Fallopian Tubes. (Abcès froids tubaires.) H. Albertin.
32 Direct Transfusion of Blood According to Crile. (Transfusion directe du sang.) A. Carrel.
33 *Subserous Cholecystectomy. G. Cotte.

December, No. 2, pp. 93-204

34 *Treatment of Artificial Anus. (Traitement de l'anus contre nature.) X. Delore and Thévenet.
35 *Chloroform Lesions of the Liver. (Rôle de l'intoxication par le chloroforme dans la genèse de certains accidents attribués "au foie appendiculaire.") E. Weill, P. Vignard and G. Mouriquand.

January, No. 3, pp. 205-332

36 *Perineal and Suprapubic Prostatectomy. V. Rochet and G. Salinier.
37 *Hypertrophic Tuberculosis of the Appendix. G. Gayet.
38 *Resection of Joints Followed by Mosetig-Moorhof Filling. (Plombage des articulations.) P. Vignard and G. Gruber. Commenced in No. 2.

31. **Tuberculous Abscess in Fallopian Tubes.**—Albertin reports three cases of a chronic tuberculous process in the Fallopian tubes entailing very large abscesses. The evolution is slow and insidious, some trivial trauma or a little vague pain in the region first calling attention to the lesion. In one of the cases related more frequent micturition was the only sign of the bilateral tubal lesion. The pain was never acute, merely a sensation of pressure, of dragging down behind the pubis with the dull ache radiating at times into the lumbar region and the legs. There was no evidence of an acute painful process at any time. Menstruation was not much disturbed. The absence of general disturbances is a special feature of this form of tubal abscess, although the patients may display a slight tendency to grow thin and weak. The tubal abscess of this kind is longer and flatter than the usual ovarian cyst, and it is bilateral, movable and not tender. The patients are generally young women free from any previous genital disturbances, but with antecedents suspicious of tuberculosis.

33. **Subserous Cholecystectomy.**—Cotte gives seven illustrations of the details of the technic of this operation and discusses its indications and contraindications, advantages and inconveniences.

34. **Treatment of Artificial Anus.**—Delore and Thévenet review their experience with six cases and conclude from this material and from study of the literature that the extraperitoneal technic should be discarded except for very small fistulas without spur formation; enterectomy is the preferable operation. This does away entirely with the lesion without leaving a chance for adhesions to develop. Side-to-side enterorrhaphy is useful when the fistula is in the large intestine, especially when the cecum is involved. For the small intestine it should be used only when the fistula is very small and there is no spur, or when enterectomy is impracticable.

35. **Chloroform Lesions of the Liver.**—Weill and Vignard have encountered a series of fatalities after operations for appendicitis which they ascribe to the injurious action of the chloroform on the liver. The disturbances did not develop until the first or second day after the operation, but then the patients showed signs of extreme and progressive weakness, sometimes accompanied by jaundice and blackish vomiting. The patients all succumbed in two or three days and extremely severe lesions were discovered in the liver in every instance. The lesions of peritonitis could never cause such fulminating toxic accidents, and there were no signs of inflammation of the liver, merely a total cellular necrosis with the aspect observed in pernicious jaundice. Recent research has confirmed the extreme sensitiveness of the liver to the action of chloroform; Gurcel has recently demonstrated that chloroform anesthesia is capable of inducing in man the syndrome of pernicious jaundice. A large proportion of the

fatalities occurring two or three days after an operation are probably due to this cause, particularly in cases in which the trauma of the operation and the loss of blood were too slight to explain the fatal outcome. The fatalities have generally hitherto been ascribed to the extreme toxicity of the appendicitis. The authors ask in conclusion whether such fatalities have been observed when ether was used or in the absence of surgical intervention, believing that the answer will be negative in both cases.

36. **Perineal and Suprapubic Prostatectomy.**—Rochet and Salinier have been collecting statistics for comparative estimation of the advantages of the high and low route The mortality was 71, that is, 8.7 per cent. in 819 cases in which perineal prostatectomy was done, while it was 10.9 per cent. in 748 cases of transvesical prostatectomy. On the whole, they conclude, the perineal operation seems to be less serious than the suprapubic; there is less shock and the facilities for drainage are better. On the other hand, if the conditions are not very grave and the general health is good and there are no signs of infection, the transvesical operation is no more serious than the perineal technic while it has the advantage of being shorter; the wound can be kept clean better, and there is no danger of injuring the rectum. The transvesical technic in the hands of most surgeons has profited by the experiences obtained with the perineal.

37. **Hypertrophic Tuberculosis of the Appendix.**—Gayet has found on record fifteen cases of a tuberculous process in the appendix causing hypertrophy. The process is identical with that which develops in other parts of the bowel. The symptoms form a combination of those of appendicitis, tuberculous peritonitis and enteritis. There are generally tuberculous antecedents, chronic diarrhea and emaciation. Prompt appendicectomy may prevent generalization of the process and be followed by a complete cure. A case is illustrated and fourteen articles on the subject are reviewed.

38. **Resection of Joints Supplemented by Mosetig Filling.**—Vignard and Gruber give an illustrated description of thirteen cases and analyze the various indications and technic for the shoulders, knee, elbow, etc. Their experience has been most encouraging with the Mosetig-Moorhof method of filling up the cavity left after resection of a tuberculous joint. They regard it as a most important improvement in the technic of resection. By doing away with the necessity for drainage, and thus the danger of secondary infection, it hastens the healing after operations on tuberculous joints. The filling method is particularly useful with resection of the shoulder, wrist, hip and ankle, and is also valuable with resection of the knee or smaller joints by filling up the small cavities resulting from the curetting of the focus. The filling acts like a dressing and a local medication, while preventing too abundant discharge. It effectually takes the place of the older method of wicks. The authors followed the Mosetig technic strictly except that they had the filling semifluid and found it wiser to fill up the cavities at two sittings. By this method the dressings are reduced to a minimum and thus do not present a constant danger of infection. The long interval between renewals of the dressings allows the patients to have the benefit of country air in the interim and they can be sent into the country in a few days after the operation. Healing proceeds much more rapidly than under other conditions.

Presse Médicale, Paris

December 26, XVI, No. 104, pp. 841-848

39 Expulsion of Empty Membranous Sac a Sign of Extrauterine Pregnancy. (Expulsion d'une caduque toujours signe d'une grossesse ectopique.) S. Remy.
40 Hydrotherapy for Arteriosclerosis. A. Martinet.

December 30, No. 105, pp. 849-856

41 *Abdominal Myomectomy. S. Pozzi.
42 Paraguay Tea. (Le maté.) J. Lesage.

41. **Abdominal Myomectomy.**—Pozzi describes a few typical cases showing the advantages of myomectomy, rather than hysterectomy, for young women if the tumor is not larger than the fist and does not project into the cavity of the uterus and if the tubes and ovaries are sound. It is also advisable if there are even two or three tumors if they can be readily enucleated. Myomectomy is also advisable for older women if the growth is single and the genital apparatus is otherwise sound. He advises myomectomy as a preventive measure whenever the abdomen is opened for any cause, even if the nodules are still symptomless. The indications are about the same whether the woman is pregnant or not. In one case related a subperitoneal sessile growth was removed by an abdominal operation from the uterus over two months pregnant. The patient complained of intense pain but concealed the fact of the pregnancy and evidently exaggerated the pains. He was careful to avoid traction or manipulation of the gravid uterus, cutting out the myoma, and the pregnancy continued undisturbed. He says that he would not have operated in this case if he had suspected the pregnancy, but that the successful outcome is all the more interesting. The woman aborted at the sixth month but this was more or less voluntary, and he does not think that the operation was in any way responsible. In another case a large fibromyoma outside of the uterus, in the region of the promontory, interfering with the development of the uterus three and a half months' pregnant, was successfully removed without influencing the gestation.

Semaine Médicale, Paris

January 6, XXIX, No. 1, pp. 1-12

43 *Dismemberment of the Traditional Hysteria. (Démembrement de l'hystérie traditionelle: Pithiatisme.) J. Babinski.

43. This subject was discussed in THE JOURNAL, Aug. 8, 1908, p. 537, and Sept. 12, 1908, p. 929.

Berliner klinische Wochenschrift

December 21, XLV, No. 51, pp. 2257-2292

44 Classification of Symptomatic Psychoses. K. Bonhoeffer.
45 The Cachexia Reaction, Especially in Cancer Patients. L. Brieger and J. Trebing.
46 Diagnosis of Carcinomatous Meningitis. E. Stadelmann.
47 Experimental Treatment of Trypanosomiasis in Rats with New Arsenic Compound; Resulting Blindness. H. Wendelstadt.
48 Scarlet Fever and Serodiagnosis of Syphilis. (Scharlach und Serumreaktion auf Syphilis.) C. Bruck and L. Cohn.
49 Pleuritic Adhesions and Their Treatment with Thiosinamin. (Pleuritische Schwarten und ihre Behandlung mit Fibrolysin.) Schnetgen.
50 *Results of Treatment of Tuberculosis with Kuhn's Lung Suction Mask. (Ergebnisse der Behandlung der Lungentuberkulose mit Kuhn'schen Lungensaugmaske.) A. Vehling.

December 28, No. 52, pp. 2293-2320

51 Treatment of Pernicious Anemia. G. Klemperer.
52 Relations of Spirochetes with Mouse Cancer. (Die Beziehung von Spirochaeten zum Krebs der Mäuse.) H. R. Gaylord (Buffalo).
53 Functional Cure of Postoperative Serratus Paralysis. M. Katzenstein.
54 Agglutination of Paratyphoid Bacilli in True Typhoid. J. Thies.
55 Blood Findings in Children at the Seaside. (Blutbefunde an der Nordsee.) Häberlin.

50. **Experiences with the Lung Suction Mask in Pulmonary Tuberculosis.**—Vehling reports a number of cases treated with Kuhn's mask at the Edmundsthal sanatorium. The results encourage its further use, although it did not display any marked curative action, especially in the cases rebellious to other measures. The mask has an encouraging effect on the patients, while it aids in teaching better methods of respiration, with other advantages. He advises its use for a year for anemic patients suspected of tuberculosis, as an adjuvant to iron. Also as a prophylactic measure for the narrow-chested predisposed, and for patients requiring sanatorium treatment but unable to obtain it. The mask impedes inspiration somewhat while allowing free expiration. Kuhn's attention was attracted to the hyperemia constant in the lungs during suffocation, and he devised the mask to produce this same result. The predisposition of the apices to tuberculosis is partly the result of the defective circulation and ventilation in this region, and he aims to combat this by the mask, which imposes the necessity for more vigorous muscular action, while at the same time the lungs are not called on for such extensive excursions. The heart benefits by the increased aspiration of blood into the lungs, thus promoting the venous circulation. The fifteen patients who used the mask said that it gave them great subjective relief, and the neutrophile blood picture showed distinct improvement.

Correspondenz-Blatt für Schweizer Aerzte, Basle

December 1, XXXVIII, No. 23, pp. 745-784

56 *Primary Operative and Ultimate Results in 80 Cases of Abdominal Total Hysterectomy for Myoma. M. Walthard.
57 *Venesection. (Aderlass.) K. Kottmann. Commenced in No. 22.

December 15, No. 24, pp. 785-816

58 *General Anesthesia by the Rectum. (Die Rektalnarkose.) F. Dumont.
59 *Pubiotomy and Artificial Premature Delivery. (Hebosteotomie und künstliche Frühgeburt.) A. Schlüfli.
60 Typical Dislocation of the Fragments in Torsion Fracture of the Leg. (Typische nachträgliche Dislokation der Fragmente bei den Torsionsfrakturen des Unterschenkels.) E. D. Schumacher.

56. **Remote Effects of Hysterectomy for Myoma.**—Walthard reports the results of recent examination of 80 women after a longer or shorter interval since abdominal hysterectomy for myoma in the uterus. The favorable findings in this wider experience confirm the conclusions of his previous communication on the same subject, summarized in THE JOURNAL, May 30, 1908, page 1872.

57. **Venesection.**—Kottmann extols the advantages of venesection in uremia, eclampsia and other intoxications, and in anemia and chlorosis. In uremia the venesection removes part of the toxins and relieves the brain of the almost invariable local edema while also withdrawing some of the toxins there accumulated. The brain cells in uremia are liable to retain waste products and salt and these may in turn attract water, this effect promoted by nephritic injury of the blood vessels, including those in the brain. This explains the marked and almost instantaneous relief experienced from venesection in uremia, even when the edema in the brain is still clinically latent. It also explains why it is wrong to follow the venesection with infusion of physiologic salt solution which in its turn may induce new injury of the brain. Venesection is especially useful in eclampsia when it accompanies delivery. If the delivery proceeds without loss of blood it should be supplemented by venesection, but as a rule enough blood escapes to answer the desired purpose. Venesection is also useful in carbon monoxid and other accidental poisonings. It is rarely required in chlorosis but in the obstinate cases it may prove useful to whip up the torpid blood-producing apparatus. In pernicious anemia he has found the total amount of blood reduced to one-nineteenth or one-twenty-third of the total weight, while the normal figure is one-twelfth. Even under these conditions he would not shrink from venesection as a last resort, thinking that possibly saline infusion might prove equally useful as a stimulant for new blood production. As a rule, 450 c.c. of blood is a large amount to be withdrawn by venesection, 250 c.c. a moderate and 100 c.c. a very small amount. He prefers to use an infusion needle connected by a rubber tube with a graduated receptacle, Baccelli thinks that in nephritis better results are obtained by opening a vein in the foot, but the elbow is generally the preferred site.

58. **General Anesthesia by the Rectum.**—Dumont reports encouraging results from administration of the anesthetic by the rectum for operations on the head and throat. This leaves the field of operation entirely clear for the surgeon but the rectal route is not advisable when it is a question of operations elsewhere. The main points in this rectal technic are to prepare the bowel for the anesthetic and to ensure that only the fumes—not a droplet of fluid—find their way into the rectum. He used ether, an interposed glass sphere in the connecting tube collecting the condensing droplets as the fumes of the ether rise from the graduated jar, set inside an outer jar filled with warm water. The simple apparatus is illustrated and described. He advises giving the anesthetic as usual and, when the operation commences, to continue the anesthetization by inserting the olive-tipped glass tube in the rectum and allowing the ether fumes to enter as the patient shows signs of rousing. To avoid reaction on the part of the intestines, fifteen drops of tincture of opium are given just before the operation. The pulse and respiration were even and tranquil in his experience with four cases, and no symptoms were observed on the part of the bowels except in the first case before the present technic had been adopted. Those who have tried to popularize the rectal method have failed by attempting to use it for all kinds of operations. Its true field is for operations on the head and throat, as a supplement to the ordinary technic.

59. **Pubiotomy Versus Artificial Premature Delivery.**—This article presents the balance-sheet of 664 pubiotomies done by various surgeons; the list of mishaps is a long one. Two of the women succumbed to hemorrhage from the wound, and the total mortality was 1.95 per cent. for mothers and 9.6 for children. Complete incontinence of urine is the present fate of 4.17 per cent. of 120 of the women recently examined.

Deutsche medizinische Wochenschrift, Berlin

December 31, XXXIV, No. 53, pp. 2297-2328

61 *Treatment of Bronchial Asthma. G. Treupel.
62 *Objective Determination of Subjective Peripheral Nervous Disturbances. Cornelius.
63 Treatment of Severe Spastic Paralysis. (Behandlung schwerer Kinder-Lähmungen.) E. Mayer.
64 Determination of Traces of Blood with the Benzidin Test in Criminal Cases. (Nachweis von Blutspuren mittels der Benzidinprobe in forensischer Beziehung.) A. Ascarelli.
65 Alimentary Value and Utilization of Raw and Soft-Boiled Eggs. (Nährwert und Ausnützung roher und weichgekochter Hühnereier.) S. Aufrecht and F. Simon.
66 Treatment of Nevus with Carbon Dioxid Snow. (Behandlung der Naevi mit Kohlensäureschnee.) A. Strauss.
67 Safe Arrangement for Roentgen-Ray Examination in Daylight. (Röntgendurchleuchtungen bei Tageslicht unter vollkommenem Strahlenschütz für Arzt und Patienten.) F. Davidsohn.

61. **Treatment of Asthma.**—Treupel regards asthma as a special form of neurasthenia, and believes that it can be effectually cured by impressing the fact of its curability on the patient and obtaining his cooperation. The main point is to influence and control the dread of suffocation and to regulate the breathing. The latter is accomplished by various exercises training the patient to breathe deep with a slow inspiration, at the same time raising the arms over the head and then, during expiration, applying the hands to the front and sides of the chest, squeezing the walls together to aid in expelling the last traces of air. These exercises or their equivalents should be repeated once or twice a day for fifteen minutes. Electric light sweat baths and potassium or sodium iodid have proved very useful in his experience when applied during the intervals between attacks. Sedatives may be useful in the acute attack but should be used only in emergencies. Exercises and hydrotherapy with a transient change to a more favorable climate, the seashore or mountains, are important adjuvants. He adds that the treatment of bronchial asthma is a grateful but by no means an easy task; success requires much skill, a determined will and perseverance.

62. **Objective Evidence of Subjective Nervous Disturbances.**—Cornelius describes a method with which it is possible to obtain objective evidence of peripheral subjective disturbances. He places his hand on the part of the body alleged to be the seat of pain, and works his second or third finger down into the tissues. When it reaches the seat of true pain this "nerve point massage" elicits a response in the form of a muscular reaction. The muscle becomes taut, generally a small round, hard contraction of the muscle. Passing on beyond the seat of the pain the muscles are normally soft. This spontaneous response is never missed in case of actual pain. When this form of massage is applied to the brow, skull or back of the neck, the muscles in the back of the neck stiffen perceptibly. Goose flesh may also be observed and a pungent odor from the body. These measures require considerable skill on the part of the examiner, a year's practice being usually necessary to render him certain in his estimate. This "nerve point massage" may also be useful in treatment.

Medizinische Klinik, Berlin

December 20, IV, No. 51, pp. 1937-1972

68 Acute Affections of Upper Air Passages. (Die akuten Erkrankungen der oberen Luftwege.) Frese.
69 Trichophyton Fungi. (Die Trichophytien.) B. Bloch.
70 Brown Pigmentation of Cornea by Chromin. (Braunfärbung der Hornhaut durch Chrom.) F. Bayer.
71 *Diagnosis of Duodenal Ulcer. (Zur Diagnose des Duodenalgeschwüres.) v. Sohlern.
72 Massage and Treatment with Superheated Air. (Massage und Heissluftbehandlung.) F. Kirchberg.
73 Hereditary Familial Affection of Central Nervous System. (Weitere Mitteilungen über eine eigenartige hereditär-familiäre Erkrankung des Zentralnervensystems.) Merzbacher.
74 Traumatic Neuroses and Accident Insurance. W. Ewald.

December 27, No. 52, pp. 1973-1992

75 Malformation as Cause of Uncontrollable Hemorrhage in the New-Born. (Missbildung als Ursache unstillbarer Blutung beim Neugeborenen.) A. Würtz.
76 *Nervous Pains and Treatment by Hypnotic Suggestion. (Nervöse Schmerzen.) H. Delius.
77 Occlusion of Superior Mesenteric Artery. (Zur Diagnose der Infarzierung des Darmes infolge Verschlusses der Arteria mesenterica superior.) K. Radonicic.
78 *Spastic Constipation and "Fragmented Stools." (Zur Diagnose der spastischen Obstipation und über das Wesen der fragmentären Stuhlentleerung.) J. Kretschmer.

71. **Glycosuria in Diagnosis of Duodenal Ulcer.**—Sohlern comments on the fact which seems to be established that about one-fifth of the cases of duodenal ulcer develop without symptoms although investigation for "occult" blood will sometimes reveal it in dubious cases. Duodenal ulcer has been observed in infants and in children, but in the majority of cases the patients are between 30 and 40 and generally males. There seems to be some promise in the recent suggestion by Fuld and Katzenstein that as injury of the epithelium reduces the production of antiferments, thus depriving the epithelium of their neutralizing protection, it might be possible to supply from without antipepsin and antitrypsin as a substitute for the lacking ferment production. As an aid for early differentiation of duodenal ulcer Sohlern calls attention to the glycosuria observed in a case which he reports in detail. The glycosuria ranged between 0.2 and 0.4 per cent. during the three or four weeks the ulcer was at its height, and then subsided. There was nothing to suggest diabetes in the past history of the case and there has been no glycosuria since the healing of the ulcer under treatment as for a gastric ulcer. The diagnosis was anacid gastritis and duodenal ulcer; there was nothing to suggest tuberculosis. In conclusion Sohlern reviews recent experimental research in which glycosuria was observed as a result of irritation of the duodenum. Eichler has reported unusually intense glycosuria in dogs after irritation of the duodenum, especially irritation of the duodenum with caustic soda. Gaultier has also reported glycosuria persisting till death in a dog with duodenal ulcer. The duodenum seems to be particularly liable to react to irritation by inducing glycosuria. Zak has reported two cases in man after irritation of the duodenum, but as other parts were involved these findings are not so conclusive as the personal case reported in which the glycosuria appeared and disappeared with the duodenal ulcer.

76. **Nervous Pains and Their Treatment by Hypnotic Suggestion.**—Delius assumes that pain from a long-continued organic affection finally induces hyperexcitability in the connected neurons which in turn leads to more intense perception of the pain than is justified by the affection responsible for it. In certain overexcitable individuals the pain may persist from this cause even after the causal organic affection has subsided. He believes that this is especially liable to be the case after a trauma; the pain persists although the traumatic injury has healed. Over-anxious self-observation is also liable to induce pain when under other conditions no pain would be perceived from the sensations in the various organs. In hysteria the neurons are supersensitive to begin with. In all these conditions the trouble is more an illusion of pain than actual pain, and in such cases psychic treatment is peculiarly effectual. The bilateral symmetric or alternating character of the pain speaks for a psychic origin, but the pain may occur on one side only. Pain restricted to a certain section of the body is also suspicious, especially what he calls psychalgia of the arm. He has been successful in treating these conditions with suggestion or hypnosis, as also sciatica, cardialgia, migraine, headache, etc., and dysmenorrhea. He says that in hundreds of cases he has abolished the pains of menstruation by hypnotic suggestion, and states that it is thus possible to insure normal menses and to cure a tendency to painful periods, with excessive or insufficient, too frequent or too tardy menses, excessive climacteric hemorrhages, and also amenorrhea. He has found it possible by suggestion to prevent the development of pain in minor operations and at childbirths. The aim is to reduce the sensitiveness of the neuron complex involved so that in future neither irritation from the periphery nor associations connected with it are able to elicit the response of pain in the neuron complex. At first he tries to attenuate or inhibit the pain completely, but only transiently; he succeeds in proportion to the suggestibility of the patient and the depth of the hypnosis. Success in this wins the patient's confidence, that is, powerful associations in the right direction are thus forged. As the supersensitive neuron is thus left more and more at peace from the former crowding emotional associations, it gradually becomes tranquilized, the sensibility subsides and the illusions or hallucinations of pain disappear. The patients are taught to realize that worry over the pain is an important factor in its maintenance. If possible to realize profound hypnosis, the aim is reached easier and better as in this state the capacity for accepting foreign ideas is magnified. For this reason he advises hypnosis for all appropriate cases not reserving it for those refractory to all other measures. Even hypnosis is liable to fail in these rebellious cases.

78. **Spastic Constipation and Fragmentary Stools.**—Kretschmer reports half a dozen cases; the patients were men leading sedentary lives, all with more or less neurasthenia and inclined to worry. In some cases the fragmented stools alternated with the spastic constipation. He is inclined to ascribe the condition to excessive muscular action on the part of the bowel in response to the stimulus from the feces. The muscles contract more energetically than is the case in normal individuals, out of all proportion to the stimuli. Treatment should aim to reduce the nervous hyperexcitability of the intestine and the amount of excitation, having the food as free from cellulose and waste as possible. Hot sitz baths may also be found useful, with oil or other enemas and belladonna in suppositories.

Münchener medizinische Wochenschrift

December 22, LV, No. 51, pp. 2651-2698

79 *Antiferment and Ferment Treatment of Suppurative Processes. (Neue Heilbestrebungen in der Behandlung eitriger Prozesse.) H. Kolaczek.
80 *Importance of Examination of Blood for Surgical Diagnosis. (Bedeutung der Blutuntersuchung für die chirurgische Diagnostik.) E. Fabian.
81 Senile Anesthesias. H. Ehret.
82 Varying Action of Arsenic During Muscular Work and Repose. (Verschiedene Arsenwirkung bei Muskelarbeit und bei Muskelruhe.) M. Riehl.
83 Successful Treatment of Severe Infantile Spastic Paralysis. (Erfolge in der Behandlung schwerer Kinderlähmungen.) O. Vulpius.
84 Thorium Oxid as Adjuvant and Partial Substitute for Bismuth in Roentgen-Ray Examination of Digestive Tract. (Die Thorerde, Thorium oxydatum anhydricum, in der Röntgenologie des menschlichen Magendarmkanals.) C. Kaestle.
85 Relics of Rachitis in Adult Thorax. E. Ebstein.
86 *Asthma and Stuttering, Two Closely Allied Neuroses. (Asthma und Stottern.) H. E. Knopf.
87 *Calcium Chlorid as Preventive for Serum Sickness. (Chlorkalzium gegen die Serumkrankheit.) J. Gewin.
88 Frequency and Conditions of Seminal Emissions in Health. (Häufigkeit und Bedingtheit der Pollutionen beim gesunden Manne.) J. K. Friedjung.
89 *Renal Decapsulation in Eclampsia. (Nierendekapsulation bei Eklampsie.) Gminder.
90 Cervical Ribs. (Halsrippen.) Schäfer.
91 The Eye and Accident Insurance. (Invalidität und Auge.) E. Cramer.
92 Portable Operating Table. (Operationstisch für geburtshilfliche und gynäkologische Eingriffe in der Praxis.) Manger.
93 Embryology and Treatment of Enterocele. (Zur Entstehungsgeschichte und Behandlung der Eingeweidebrüche.) W. Koch. Commenced in No. 49.

79. **Local Treatment of Suppurative Processes Along New Lines.**—When iodoform is injected into a tuberculous process it attracts leucocytes to the spot and they bring with them the ferments which promote healing. The new treatment aims to supply these ferments directly from without, thus doing away with the necessity for the intermediation of the iodoform or other drugs. In non-tuberculous lesions the ferments frequently accumulate in excessive amounts, so that an abscess results. The ferments accumulating in excessive amounts in the abscess destroy the tissues in a constantly widening circle, the absorption of the toxins from the decaying masses poisoning the organism with resulting septic fever and its sequels of increased destruction of albumin, etc. By evacuating the abscess and supplying from without the lacking anti-ferment and filling the abscess cavity with it, the destructive action of the ferment is arrested as it becomes neutralized by the antiferment; toxins are no longer

formed at the spot and absorbed and the path is cleared for the vital action of the phagocytes in the lesion, no longer hampered by the dead weight of the pus. The antiferment used in this new treatment has been that found naturally in human blood serum, transudates and exudates; the effusion in ascites and hydrocele has been the main supply to date, and interesting results have been reported by Jochmann, Müller and others. Kolaczek describes ten cases in which this treatment has been applied at von Bruns' clinic, at Tübingen, after extensive experimental research, and with encouraging results, although the indications for it and the technic have not yet been perfected. The blood serum of animals has comparatively little antiferment, and consequently it has been passed over and only human material used, but Kolaczek has found that animal serum can be condensed by vacuum distillation until the residue contains four times as much antiferment as natural human serum. In order to obtain it in still more concentrated form he increases the production of antiferment in the animal to be slaughtered by preliminary subcutaneous injection of a ferment solution. The new treatment therefore includes evacuation of the abscess by puncture and aspiration—no incision is required; the cavity is then rinsed out with the antiferment-serum and it is then filled again with the serum which is allowed to remain. The extraneous ferment or antiferment must come into direct contact with the walls of the cavity to be effectual. This procedure is repeated from one to three times. The antiferment content of the fluid is tested with a solution of trypsin, the usual "antiproteolytic" test.

80. **Examination of the Blood for Surgical Diagnosis.**—Fabian discusses whether it is possible that affections of the blood or lymph producing apparatus are ever strictly localized at first or are general from the start. If localized, it may be possible by extirpating the primary focus to arrest the affection in its incipiency. He reports four cases to start the ball rolling. In the first a large lymphoma in the neck was accompanied by a relative 70 per cent. lymphocytosis, with 3 per cent. large lymphocytes—Rieder's cells. Three days after excision of the lymphoma the blood picture had become approximately normal, the lymphocytosis dropping to 35 per cent., showing that the lymphoma must have been the main source of their production. The blood picture remained approximately normal when examined ten days later. Another tumor became evident by the sixth week, and the blood picture showed again the high relative lymphocytosis. In three other cases the wavering diagnosis was settled by the morphologic blood picture, but the multiplicity of the lesions when first seen excluded the possibility of successful surgical intervention. Instructive information might also be derived from the morphologic blood picture in echinococcus affections.

86. **Asthma and Stuttering.**—Knopf has noticed that these two neuroses are never encountered in the same person, and thinks that this is because the patient's attention is so completely taken up with the one that there is no room in his consciousness for another neurosis of coordination. He has treated over 200 patients with asthma or the habit of stuttering, and describes how he trains the patients to detect the incorrect elements in their mode of speaking or breathing, and to correct them, substituting the correct movements of the muscles involved. They are then shown how to speak or breathe correctly, and the general neuropathic tendency is treated. As the patients note the differences and learn how to use their muscles correctly in speaking or breathing, they gain confidence in themselves and lose their nervous dread, and the neurosis is cured. It is noticeable that the asthmatic seldom speak correctly while the stutterers seldom breathe properly.

87. **Calcium Chlorid for Prevention of Serum Disturbances.**—Gewin states that every alternate patient in a series of 200 was given calcium chlorid by the mouth when diphtheria antitoxin was injected. The results confirmed the efficacy of calcium chlorid in prevention of serum sickness, or at least in attenuating it, so that the drug is now given as a routine measure in every case. The dose was 1 gm. (15 grains) for the larger dose of serum and half this with the small doses.

89. **Renal Decapsulation in Eclampsia.**—Gminder's patient was a healthy young primipara who developed eclampsia a few hours after normal childbirth. Decapsulation of both kidneys was done after failure of other measures. The kidneys were soft and were easily decapsulated, but no benefit was observed, and the patient succumbed in coma. It is possible, he thinks, that the soft kidney may be the severer stage of which the "glaucoma" kidney is the first phase, which might explain the better results with the latter.

Therapeutische Monatshefte, Berlin

January, XXIII, No. 1, pp. 1-64

94 *Diphtheria Toxin and Antitoxin. J. Morgenroth.
95 Importance of Opsonins, Especially in Diagnosis and Treatment of Tuberculosis. H. Lüthje.
96 *Antifat Diet. (Ueber Entfettungsdiät.) H. Strauss.
97 Potassium Iodid in Actinomycosis. B. Galli-Valerio and G. Rochaz.
98 Are the Strophanthins on the Market of Equal Pharmacologic Value? A. Heffter.
99 *Pharmacology and Experimental Therapy. R. Gottlieb.

94. **Diphtheria and Antitoxin.**—Morgenroth reviews recent research which throws light on the mechanism of the action of antitoxin and suggests how to get the greatest advantage from it. He says that all the German antitoxin is now tested for the presence of tetanus germs, as Madsen has recently reported that the serum of a horse five days before the outbreak of severe tetanus was found to contain so much tetanus toxin that 4 c.c. caused fatal tetanus in the guinea-pig. The presence of tetanus germs in the antitoxin, therefore, is not always due to contamination from without. Other research lately has also shown that, contrary to the previously accepted opinion, antitoxin combines with the toxin only gradually, not rapidly; the conditions are thus more favorable the larger the amount of antitoxin injected at first. It has also been established that the antitoxin is absorbed after subcutaneous injection with surprising slowness. Two or three days are required for its total absorption and even then only a fraction of the amount injected finds its way into the blood. Intravenous injection does away with all this at one stroke and should be the rule in severe cases. The desiccated antitoxin does not contain any antiseptic, and it might be dissolved and used for the purpose, he says, if carefully filtered. The intravenous route is not popular in Germany for any drugs, but Fraenkel's recent reports of his success with strophanthin injected into a vein may turn the tide in its favor. Intramuscular injections are absorbed much earlier and more perfectly than the subcutaneous. Morgenroth's researches have confirmed this and Neisser states that he has obtained much better results from the antitoxin when it was injected into the gluteal or other muscle. Morgenroth asserts further that when the blood contains much salt, the toxin does not combine with the antitoxin, which is also the case when the blood or other vehicle gives an acid reaction. In the test tube, the toxin separated again from the antitoxin when the solution was made acid. This separation of the toxin from the antitoxin may be the explanation of the post-diphtheria paralysis. It also suggests that it may be possible to promote the curative process by administering some other substances, not specific in themselves, but which may loosen up the toxin bound by the protoplasm and allow its extraction and neutralization by the antitoxin. His experiments so far have resulted only in an aggravation of the toxicity; for example, the addition of a solution of pyocyanase to the solution of diphtheria toxin materially enhanced its toxicity for the guinea-pig. It may be possible, however, to discover some substances that will have an opposite effect.

96. **The Diet in Obesity.**—Strauss devotes over two pages to a table of the different articles of food in respect to their calories per 100 gm. and the number of grams of the substance necessary to contain 100 calories. It is possible to select from his long list articles of food which will give a diversified menu while the patient loses weight without feeling the restrictions, as appetite is satisfied. He insists that the stomach should never be left long empty; frequent small meals should be the rule and alcohol avoided entirely. Vegetables, eggs (without the yolks), milk and cheese will

satisfy and prove useful when the obesity is complicated with nephritis, gout, stones in the urinary system or arteriosclerosis. The Karell "milk cure" is such pronounced underfeeding that it can not be kept up long, but it has given good service in his hands. In a recent case of contracted kidney with cardiac insufficiency and obesity but no dropsy, the patient lost 14 of his 206 pounds in one week. But merely by selecting such foods as contain few calories, he has found the weight decline evenly by about 4 pounds a week in ordinary obesity.

99. **Pharmacology and Experimental Therapy.**—Gottlieb defines pharmacology as the study of the changes which the vital processes undergo in the healthy and diseased organism under the influence of chemical substances. He expatiates on the intimate relations between pharmacology, experimental therapy, and the research on immunity, and states that every medical school should have a chair of pharmacology in which the lectures should be delivered in turn by specialists in these three branches. The training of physicians to think physiologically should be the chief aim. Pharmacology, he adds, has always suffered from lack of adequate means and equipment for its work, but even with these drawbacks it has accomplished much. He cites a number of instances to show the way in which the cooperation of the various branches has led to therapeutic discoveries, such as the warding off of diabetic coma by an alkali.

Therapie der Gegenwart, Berlin

January, I, No. 1, pp. 1-72

100 Fifty Years of Internal Medicine. (Fünfzig Jahre innerer Therapie.) E. von Leyden.
101 Fifty Years of Neurology. (Fünfzig Jahre Nervenheilkunde.) W. Erb.
102 Fifty Years of Surgical Work. (Fünfzig Jahre chirurgischer Arbeit.) F. König.
103 Fifty Years of Gynecology. W. A. Freund.
104 Fifty Years of Obstetrics. (Fünfzig Jahre Geburtshülfe.) A. Hegar.
105 Importance and Treatment of Affections of Ovaries and Fallopian Tubes. E. Bumm.
106 Efficacy of Roentgen-Ray Treatment of Venereal Ulcers. A. Buschke.

Virchow's Archiv, Berlin

December, CXCIV, No. 3, pp. 369-567

107 Phenomena Occurring when Air and Gas Get into Bone Tissue. (Ueber die bei der Luft- und Gasfüllung des Knochengewebes auftretenden Phänomene und ihre Deutung, insbesondere über die sogenannten "Gitterfiguren.") G. Axhausen.
108 Occurrence of Glycogen in Nuclei of Liver Cells. (Vorkommen von Glykogen in den Kernen von Leberzellen.) J. Karamitsas.
109 Sarcomatous Tumors of the Esophagus. (Sarkomatöse Geschwülste der Speiseröhre.) K. Donath.
110 Angioma of the Spleen. (Untersuchungen eines Angiomes der Milz.) E. v. Benckendorff.
111 *Research on Secretion of Mucus in the Intestine. (Schleimbildung im Darm.) A. Kaabak and A. Rosenschein.
112 Lipoid Degeneration. F. Munk.

111. **Excessive Production of Mucus in the Intestines.**—Kaabak and Rosenschein describe the results of research which demonstrate that mucus is produced in excessive amounts only at the point where there is local irritation. They found it impossible to induce production of excessive amounts of mucus by applying irritation at other points. Their findings confirm those of others in this line, and emphasize the necessity for assuming circumscribed local irritation as the cause of increased production of mucus in any stretch of the intestines or in the stomach. This points the way toward effectual prophylactic or therapeutic measures.

Wiener klinische Wochenschrift

December 17, XXI, No. 51, pp. 1765-1802

113 Clinical Importance of Serodiagnosis of Syphilis. (Die Wassermannsche Reaktion.) R. Bauer and G. Meier.
114 Isolation of Immune Body from Normal Serum. (Isollerung des Immunkörpers aus normalem Serum.) O. Ball and K. Tsuda.
115 Typical Findings in Sigmoidoscopy. (Ueber einen typischen romanoskopischen Befund.) G. Singer.
116 Cutaneous Affection in Relation to Acute Appendicitis. (Zur Aetiologie der akuten Appendizitis.) J. Boese.

December 24, No. 52, pp. 1803-1836

117 *New Mode of Access to Tumors in the Throat. (Neue Methode zur Freilegung der Tumoren im Rachen.) A. R. v. Rydygier, Jr.
118 Primary Sarcoma of the Pancreas. (Primäres Sarkom der Bauchspeicheldrüse.) A. v. Halasz.
119 Vaginal Amputation of Uterus. L. Wechsberg.
120 Treatment of Epispadias in Women. L. v. Mayerbach.
121 Tar Baths. (Neue Formel zur Bereitung von Teerbädern.) E. Spiegler.
122 Vaginal Douches with Carbonated Mineral Water. (Vaginaldouchen mit kohlensäurereichem Mineralwasser.) M. Wickhoff.

117. **Improved Technic for Removing Tumors in the Throat.**—Rydygier reviews the details of twenty different methods and then describes another for which he claims superior advantages. An incision is made along the anterior margin of the sternocleidomastoid muscle, from the mastoid process to the sternum. Working from below upward, the vessels are exposed and the loose fat removed with the lymphatics. This enables the operator to work without fear of injuring the vessels. A second incision is then made from the center of the greater cornu of the hyoid bone on the sound side horizontally across to the first incision. This allows two large triangular flaps to be turned back, above and below, permitting remarkable access and oversight. He describes two difficult cases in which this technic was successfully applied for removal of malignant tumors.

Gazzetta degli Ospedali e delle Cliniche, Milan

December 15, XXIX, No. 150, pp. 1613-1620

123 *Hemorrhagic Pancreatitis. A. Baduel.

December 17, No. 151, pp. 1621-1628

124 Recurring Aneurism of the Aorta. G. Radice.
125 *Alcoholism and Helminthiasis. G. Marchese de'Luna.

December 20, No. 152, pp. 1629-1644

126 New Forms of Grave Anemia. A. Rossi.

123. **Hemorrhagic Pancreatitis.**—The case reported shows that the pancreatitis may develop some time after an accident affecting the organ. In the case described there were no signs of trouble for eight days after the fall, but then symptoms developed suggesting perforation or ileus. The profound anemia, the intense pain and its localization, the blood in the vomit and stool, and the absence of signs of acute peritonitis are important signs of the "pancreatic drama." Expectant treatment is always dangerous.

125. **Alcoholism and Helminthiasis.**—Luna asserts from his experience at the Rome insane asylum that helminthiasis is able to induce mental and nervous symptoms similar to the action of alcohol, morphin or other poisons. He urges the importance of detecting and treating the helminthiasis as one of the first measures in all mental and nervous disturbances. Helminths were found in 50 per cent. of the 20 patients examined, and alcoholism in about equal proportions, coexisting in a few instances.

Books Received

All books received are acknowledged in this column and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. A selection will be made for review in the interests of our readers and as space permits.

OBSERVATIONS RELATING TO THE TRANSMISSION OF SLEEPING SICKNESS IN UGANDA; TO THE DISTRIBUTION AND BIONOMICS OF GLOSSINA PALPALIS; AND TO CLEARING MEASURES. By Aubrey D. P. Hodges, M.D., London, Principal Medical Officer, Uganda Protectorate. Paper. Pp. 28. London: Sleeping Sickness Bureau, Royal Society, Burlington House, W., 1909.

THE DIVISION OF SURGERY OF THE MEDICAL SCHOOL OF HARVARD UNIVERSITY. Report of Research Work, 1906-1908. December, 1908. Bulletin No. V. Paper. Pp. 52, with illustrations. Boston: Division of Surgery of the Medical School of Harvard University.

REPORT OF SPECIAL COMMISSION APPOINTED TO INVESTIGATE TUBERCULOSIS. State of Connecticut, Public Document. Commission Appointed by the General Assembly of 1907. H. J. Resolution No. 426. Paper. Pp. 86. Hartford: Published by the State.

MODERN HOSPITALS. By Christian R. Holmes, M.D., Advisory Commissioner to the New Cincinnati General Hospital. Paper. Pp. 22, with illustrations. Cincinnati: University of Cincinnati.

REQUIREMENTS FOR THE PRODUCTION OF CERTIFIED AND INSPECTED MILK. Paper. Pp. 12. Worcester, Mass.: Issued by the Medical Milk Commission, January, 1909.

BIENNIAL REPORT OF ST. AGNES' HOSPITAL [and St. Agnes' Hospital Training School for Nurses], PHILADELPHIA, 1906-7. Paper. Pp. 63, with illustrations. Philadelphia.

SIXTH ANNUAL REPORT OF THE SYDENHAM POSTGRADUATE COURSE AND HOSPITAL OF THE CITY OF NEW YORK. 1908. Paper. Pp. 84.

TWENTY-SIXTH ANNUAL REPORT OF THE STATE BOARD OF HEALTH OF MISSOURI FOR 1908. Cloth. Pp. 67. Warrensburg, Mo.

SEVENTEENTH BIENNIAL REPORT OF STATE HOSPITAL No. 2, ST. JOSEPH, MO., 1907-1908. Paper. Pp. 75.